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THE OVARIAN HORMONES AND THEIR CLINICAL USES

WILLIARD M. ALLEN, M.D.

ST. LOUIS

Before attempting to evaluate the uses of the various ovarian hormones which now are available, I should like to state that there are certain well recognized uses for them as, for example, the use of estrogens in the menopause and other less certain uses such as progesterone in habitual abortion. Furthermore, it is often not readily possible to justify pure substitution therapy by positive proof of ovarian deficiency. In most instances one has to rely on clinical impressions and intelligent speculation. For example, when has ovarian hypofunction incident to the climacteric become sufficiently marked to be noticeable, and when do symptoms associated with such deficiency warrant substitution therapy? Or when does dysmenorrhea become of sufficient consequence to make it necessary or advisable to institute therapy other than simple remedies? These are questions which can be answered only for each individual case and even then the method is one of trial and error.

There are two groups of substances which are recommended and used widely for treatment of ovarian dysfunction. The first group is composed of the true sex hormones which are produced by the ovaries, testicles, adrenals and placenta. These compounds are all more or less closely related and are comparatively simple chemical compounds. One would like to believe that in the female the sex hormones, estrogens and progesterone, are of major importance, whereas in the male that the androgen, testosterone, is of prime importance. The situation is not quite this simple since men excrete true estrogens in the urine and women excrete true androgens. In fact, a normal woman excretes virtually as much androgen as does a normal man. The adrenals also produce true female and male sex hormones. For example, progesterone, the hormone of the corpus luteum, has been isolated in pure form from the adrenals. Some of the active principles of the adrenal are androgenic. This group of compounds is effective biologically regardless of whether the gonads are present or absent. It is obvious that they can be used whenever one wishes to substitute for the ovary.

The second group is made up of those substances which produce an effect by virtue of their ability to stimulate the gonads. These are, of course, the gonadotropic hormones. They produce an effect on the vagina or uterus solely because they stimulate the ovary to produce a sex hormone or hormones, and these in their turn produce their effect on the organism. It goes without saying that the gonadotropic hormones are of no use when the ovaries have been removed. They also usually are of little avail when the ovary has become less able to respond to gonadotropic substances because of ageing as in the menopause. These hormones are obtained from the anterior lobe of the pituitary, the blood serum of pregnant mares and the urine of pregnant women. It seems probable also that the anterior lobe produces at least two gonadotropic hormones, one of which is predominantly follicle-stimulating and the other luteinizing. The effect on the ovary also depends in large measure on the relative amounts given and the rapidity and manner of administration. The other gonadotropic hormones most likely are produced by the chorionic epithelium of the placenta, hence they are called chorionic gonadotropins. These hormones of chorionic origin at one time were thought to be similar, if not identical, to those produced by the anterior pituitary but it now seems quite certain that, while they are gonadotropic, they are not identical with any known pituitary hormone. In fact, some workers even suspect that each species may elaborate a chorionic gonadotropin peculiar to itself. This is supported by the fact that equine chorionic gonadotropin has properties quite different in some respects from human chorionic gonadotropin. These gonadotropic prin-

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ciples are not simple organic compounds but are compounds of high molecular weight and are probably of protein nature.

But to return to the sex hormones, the estrogens are of great value in but few disturbances and these are connected directly with certain, or almost certain, evidences of ovarian hypofunction. One such indication is found in treatment of certain types of vaginitis.

The vaginal mucosa of the child and the postmenopausal woman is very thin, lacking in glycogen and readily susceptible to infection. Gonorrheal vaginitis is a notoriously chronic condition in childhood but it disappears spontaneously with the first signs of puberty. This is because at puberty the ovaries begin producing estrogen, the vaginal epithelium thickens and, as a result of the presence of more glycogen in the epithelium, more lactic acid is formed, the acidity is increased and the vaginal secretions and the vaginal wall no longer provide a suitable medium for the gonococcus. In childhood the vaginal wall responds to estrogens given artificially the same as it does to estrogens produced by the ovary at the beginning of puberty. The simple daily application of an estrogen by use of a suppository in about one week results in a marked thickening of the vaginal epithelium, increased acidity and decrease in purulent discharge and if continued for about three or four weeks the cultures for the gonococcus become negative and remain so. The vaginal epithelium, of course, reverts to the thin atrophic type a short time after discontinuing the estrogen. The application of from 0.1 to 0.2 mg. of estrone daily, or a correspondingly smaller amount of estradiol, in this manner clears up the local infection but an insufficient amount is absorbed into the general circulation to produce any signs of premature puberty such as enlargement of the breasts.

Senile vaginitis also is improved readily by the same comparatively simple regime. It is, of course, important not to combine this treatment with alkaline douches. In fact, it usually is best to give no supportive treatment of any sort. Estrogen therapy is designed entirely to produce an increased amount of vaginal desquamation which in turn makes more glycogen available for breakdown into lactic acid, the increased acidity destroying the organisms responsible for the vaginitis.

It might be pointed out in this connection that the habit of daily douching, which is practiced so frequently, can not be condemned too vigorously, regardless of the solutions used. It only serves to wash away the vaginal secretions which are as necessary for preserving healthy conditions in the vagina as are salivary secretions in the mouth.

The vaginal smear is of considerable help in determining the success of the treatment in vaginitis, whether it be in the child or in the elderly woman. The smear before treatment shows many pus cells and a small number of epithelial cells, the majority of which are not cornified, whereas, soon after the institution of treatment the pus cells rapidly disappear, the epithelial cells become numerous and eventually more or less completely cornified. Simple inspection of the vagina shows the change fully as well. The reddened moist vaginal wall soon changes and becomes pinkish-gray and semitranslucent, and the purulent, semiliquid vaginal discharge is replaced by a white, rather thick, somewhat cheesy secretion.

This form of treatment is not uniformly applicable to all forms of vaginitis. Some investigators have reported success in trichomonas infection but that has not been my experience. It is, of course, contraindicated during pregnancy, not because it could do any harm but, rather, because the vaginal wall is already under the influence of large amounts of estrogen. Vaginitis during pregnancy surely is not due to estrogen deficiency. The use of the estrogens, therefore, is limited sharply to the times during life when estrogen deficiency is known to be present, i. e., during childhood and after the menopause, and if their use is limited to these periods the results are usually highly satisfactory.

The second readily accepted use for the estrogens is for alleviation of the unpleasant symptoms of the menopause. It is much more difficult to discuss this subject than such simple things as vaginitis. The menopause is a disturbing time to every woman but how disturbing depends in large measure, I expect, on the point of view. Some authorities state that the majority of women pass through the climacteric with little difficulty whereas others state that the majority of women have distressing symptoms. My own feeling about the matter is that the majority of women have some of the subjective symptoms of the menopause such as the flushes, nervousness and sleeplessness, but that in only a few are the symptoms sufficient to warrant intensive treatment wtih estrogens. The menopause is a period of transition, one of readjustment, and the use of large amounts of estrogens serves only to defer the time when readjustment has to be accomplished.

The questions which invariably arise concerning the time when estrogens should be begun and when they should be discontinued can be answered only for each individual patient. Oftentimes the most troublesome part of the symptoms are over when the patient first consults the physician. If the flushes have become much less and the headache and irritability have stopped, it is unwise to give estrogens as the symptoms may recur in increased amount when estrogens have been discontinued. If, on the other hand, the symptoms are troublesome, then it would seem wise to give estrogens for nothing else gives such dramatic relief. Patients may be relieved by sedatives but I have yet to find a patient who did not get much greater relief from adequate amount of estrogens than from bromides or barbiturates. Patients getting adequate treatment are not relieved by hypodermics of sterile oil. In fact I have seen patients who

could detect a decrease in dosage by an increase in symptoms even though they received the same apparent amount of oily solution at each injection. There can be no question about the efficacy of the estrogens in the majority of cases but the difficulty arises when they are discontinued for, in many instances, the symptoms are fully as bad as before. The process of gradually decreasing the dose seems the only way of proceeding but this is not completely satisfactory most of the time.

The most common symptoms of the menopause are flushes, nervousness, insomnia and menstrual irregularities, and these occur in the majority of cases. Occipital headache is also fairly common and when present in a troublesome symptom. These subjective symptoms plus many others are rapidly improved by estrogens, although it may take doses of from 5 to 10 mg. or more of estrone or from 2 to 3 mg. of estradiol benzoate per week to relieve the headache. Headache ordinarily is interpreted as being due to enlargement of the pituitary. Whether or not this is the correct explanation it is a fact that the pituitary increases in size following castration in animals and in the woman there is an increased amount of gonadotropic hormone present in the urine following castration and during the climacteric and when adequate amounts of estrogen are given the amount of gonadotropic hormone in the urine is restored to normal. This experimental finding supports the idea that estrogens depress the pituitary in so far as the production of follicle stimulating hormones are concerned.

The next subject which I would like to mention is amenorrhea. I do not know how general the practice may be but, often, when a woman develops amenorrhea other than during pregnancy, the first endocrine product tried is one of the estrogens. The results are usually unsatisfactory unless perchance the amenorrhea actually is due to the menopause when there is subjective improvement. Amenorrhea is not necessarily due to ovarian failure as in many instances there is little evidence of estrogen deficiency, the vaginal wall being thick and the uterus of normal size. The disturbance is one of failure of ovulation. The use of estrogen in such a patient, theoretically at least, only further depresses the pituitary and hence places the ovary on a still lower functional level and in practice the result is exactly what one would expect. When large doses are given for two or three weeks, vaginal bleeding may occur because of artificial estrogen deprivation but spontaneous periods practically never result from such treatment. Even if the amenorrhea has been of long standing and there is marked atrophy of the reproductive organs, the use of estrogens rarely if ever does more than produce growth of the uterus, vagina and breasts. The ovaries are not stimulated and hence no real improvement is obtained. It is much better to treat amenorrhea by measures designed to improve the general health and the statement is still true that more cases of amenorrhea and infrequent menses have been improved by the use of thyroid extract than by any other endocrine preparation in common use at present. For those not improved by thyroid, and there are many, the gonadotropic hormones previously mentioned should be tried but, unfortunately, they have not been accompanied by dramatic success.

Recently estrogens have been used in the treatment of severe dysmenorrhea, the rationale being to give a sufficient amount during the first half of the cycle to suppress ovulation and hence convert a normal ovulatory cycle into an anovulatory cycle. It should, of course, not be done in the ordinary case of dysmenorrhea but should be reserved for the intractable case that fails to respond to similar measures. There is probably no permanent injury to the ovary from this procedure but when one recalls the extraordinary difficulty encountered in handling some cases of functional bleeding in adolescent girls and young women, a condition due in all probability to failure of normal ovulation, one should be somewhat reluctant to convert a fertile, ovulatory cycle accompanied by dysmenorrhea to a sterile, anovulatory cycle free of dysmenorrhea.

The use of estrogens in the second half of the cycle, after ovulation has occurred, is not subject to such criticism. Whether or not such a procedure is ever of any benefit is problematic, but in animals the corpus luteum is stimulated by estrogens and in the rabbit, at least, the corpus luteum probably owes its continuing existence to the effect of estrogens. This fact immediately suggests the use of estrogens whenever there is reason to believe that the corpus luteum may be abnormal, but it is difficult to prove that corpus luteum deficiency exists. One may assume, of course, that dysmenorrhea, premenstrual tension, habitual abortion and sterility are due to corpus luteum deficiency. Assuming this, then estrogens may be tried hoping that they may stimulate the corpus luteum to more normal function. There is just enough evidence to lend some support to this idea. Some workers believe that sterility, not due to mechanical causes, occasionally is overcome by estrogen.

There are other miscellaneous uses for the estrogens such as prevention of lactation and production of growth of the breast by local application which are of academic interest only. One point of interest has been brought out recently by the observation that estrogen given for the first few days in the puerperium not only prevents lactation but also may reduce the morbidity.

I already have referred frequently to adequate dosage. What is an adequate dose and what are the relative potencies of the various preparations now available? The commercial preparations are bioassayed always, usually either in rats or mice, and the potency stated in international units (i. u.), international benzoate units (i. b. u.), rat units or

day oral units, and in most cases also the absolute amount is stated (mgs.). This difference in labeling results in much confusion but there seems no simple, honest way of avoiding it. The difficulty arises in the qualitative differences which the compounds have on the test animal. Estrone in the rat produces a period of estrus lasting for only one or two days whereas estradiol benzoate produces a longer period of estrus and estradiol dipropionate an even longer period. Estradiol benzoate can not be compared with estrone and hence its activity can not be stated at present in terms of international units. For this reason the international benzoate unit was devised, but this applies only to preparations containing estradiol benzoate and it can not be used conscientiously for measuring the activity of estradiol dipropionate. Similar difficulty is encountered in appraising the activity of estriol glucuronide. This preparation is just as active by mouth as it is by injection yet it too can not be compared with the international standard of estrone by mouth since estrone is rather impotent orally. It could, of course, be standardized by comparing the amount orally which is equal to a standard amount of estrone by injection. The final difficulty arises in the fact that there is no reason to believe, without study of the matter, that the relative activities of the various compounds would be the same in the woman as in the test animal. For this reason I have attempted to compare the activity of several estrogens by determining the minimum amount necessary to produce estrogen deprivation bleeding in several castrated patients in whom the uterus was not removed.

The procedure followed was rather simple. The various compounds were given for a period of three weeks. Menstrual bleeding followed in from five to twelve days if an adequate amount was given. About one week after the bleeding had stopped another course of treatment was begun. In this manner each patient was always primed before a course of treatment and by trial and error doses were found which invariably were followed by bleeding, doses which never were followed by bleeding and doses in between these two extremes which were followed by bleeding in some instances and not in others. This procedure is essentially that used for bioassay purposes in the rat. Actually the results were similar to those obtained in the rat.

The results obtained with estradiol benzoate and estradiol dipropionate serve as examples. When 1.66 mg. or more of dipropionate was given weekly, bleeding occurred in every case, but when 1.0 mg. weekly was given bleeding occurred in only three out of five trials and with estradiol bleeding occurred in eight out of ten cases when 1.66 mg. per week was given and once in three trials with 0.66 mgm.

Estradiol benzoate, monopropionate and dipropionate have roughly the same activity per milligram when given intramuscularly. Estrone is considerably less potent per milligram, but the activity of this has not been assayed fully as yet by this method. It seems probable that it is at least five times less potent than estradiol benzoate but this is, of course, no contraindication to its use since the cost per milligram is correspondingly less and its physiologic properties are qualitatively the same. Estradiol orally is much less potent than its esters intramuscularly. It requires about fifteen times as much by mouth. Ethinyl estradiol, a derivative not yet available commercially, is extraordinarily active orally but some patients get nausea and vomiting from it. Estriol glucuronide is active by mouth but it requires from 20,000 to 40,000 oral units per week to induce bleeding.

From these studies it is obvious that an adequate dose to produce bleeding is about 1.0 to 2.0 mg. of the estradiol esters per week. This dose is greater than is necessary to relieve menopausal patients. The patients of this particular group, however, invariably felt better when the dose was adequate to produce bleeding. Most of them were subjected to artificial periods in this manner for at least a year and in two patients, artificial periods have been produced for two years. Examination of the breasts, vaginal epithelium and uterus shows no abnormalities or evidences of overstimulation. Also, the subjective symptoms from withdrawal do not become very troublesome during the two to three week period from the end of one course of treatment to the beginning of the next. All the patients studied were young, surgical castrates that were having severe symptoms and in this group it was not possible to discontinue the treatment for more than three weeks without a return of distressing symptoms.

These studies afford some information concerning the prolonged effect of estradiol dipropionate. This particular estrogen produces an effect lasting for ten days or more in the rat and one might expect similar prolongation of effect in the woman. Subjectively, the patients seemed to get an effect for a longer period than with the estradiol benzoate or estrone but the uterine bleeding began at approximately the same interval after the last injection in both instances. This does not necessarily mean, however, that there is no difference in the duration of activity since there is no proof that the decline of the estrogen level has to be identical in both instances to produce bleeding at the same time. Then, too, there is considerable variability in the interval between the last injection and the onset of bleeding. The longest interval, eighteen days, did occur, however, with dipropionate.

The other ovarian hormone is progesterone. This can be covered much more briefly, first, because there are only two preparations available and, second, because the uses of progesterone are no where near as well standardized.

Progesterone may be used in dysmenorrhea, the theory being that the pain is due to ischemia re-

sulting from strong contractions of the uterus. Progesterone does relax the uterine muscle in both animals and humans and, hence, should be beneficial in dysmenorrhea. The general opinion, I think, is that about one half of the cases of dysmenorrhea are benefited. My own experience has not been extensive, but in several patients there can be no doubt but that marked improvement was noted. The progesterone has to be given before the period has begun and I have had the best success when from 1.0 to 2.0 mg. was given intramuscularly on the last three days immediately preceding the flow. I have the impression also that it is the progesterone given in the last twenty-four hours before the onset which produces the effect. Unfortunately the treatment is not curative in any sense of the word since the next period is usually as bad as ever.

Threatened abortion is, of course, theoretically the indication par excellence for progesterone. Excision of the corpus luteum of pregnancy results in abortion in most mammals (including the human in early pregnancy) and, experimentally, progesterone will maintain pregnancy normally following excision of the corpora. Transfer of this information to the human is not so justifiable, however, because there is little evidence that abortion necessarily is due to corpus luteum deficiency. In many instances it may be and probably is due to corpus luteum deficiency but this frequently is due to the presence of a defective embryo in utero. The administration of progesterone to such a case, of course, might defeat the natural process of expelling the defective embryo. I have seen one such case in which abortion was prevented on two different occasions only to have a defective embryo expelled at the fourth month in which the placenta and membranes were intact but without a fetus. In case of a threatened abortion in which the bleeding is slight and the uterus of normal size and consistency for the period of amenorrhea, progesterone is, of course, indicated. It can do no harm and it may be beneficial.

The question of dose is paramount. In normal pregnancy at the third month from 10 to 20 mg. of pregnandiol are excreted daily (Venning). If this be taken to indicate the amount of progesterone metabolized, it is obvious that from 5 to 10 mg. as a minimum should be given daily until the symptoms have subsided, i. e., for a week or so. It seems probable that some abortions may occur because the placenta does not begin elaborating sufficient progesterone quite soon enough and, if this be so, then progesterone given for a short time might be expected to give good results.

Habitual abortion also is considered an indication for progesterone. This is a rare condition and some of these patients occasionally will carry a fetus to term after many previous miscarriages with no treatment. Many patients will have two or three spontaneous miscarriages only to have the following pregnancies progress normally. It is difficult, therefore, to evaluate the beneficial results reported in the literature, especially since the doses used usually have not been large. In habitual abortion progesterone, if used at all, should be started almost as soon as pregnancy can be diagnosed and it should be continued probably to the fourth or fifth month, the reason for beginning early being that the fetus may fail to develop normally if the progesterone level is inadequate. In the rabbit progesterone deficiency in early pregnancy leads to defective development and early death of the embryos.

Functional uterine bleeding also may be controlled successfully in some patients by the use of progesterone. The reasons for using progesterone and the procedure to be followed were discussed in a previous paper presented at this session in connection with a discussion of the significance of abnormal uterine bleeding.

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SPONTANEOUS INTERSTITIAL MEDIASTINAL EMPHYSEMA

REPORT OF A CASE

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During the last five years a number of cases of spontaneous mediastinal emphysema have been reported in the medical literature. The signs and symptoms of this condition have been well described and explanations have been offered as to its etiology and the mechanism of its manifestations. Recently, the opportunity of observing such a case was afforded on the medical service of the St. Louis City Hospital and is reported.

Mediastinal emphysema has been observed following trauma to the chest in rib fractures and stab wounds. Likewise it has been observed in conditions associated with unusual pulmonary effort such as parturition, coughing paroxysms of pertussis and croup, or the severe dyspnea of bronchial asthma. Such surgical procedures as the induction of artificial pneumothorax or pneumoperitoneum, tracheotomy, bronchoscopy and radical neck dissection have been complicated postoperatively by mediastinal and even generalized subcutaneous emphysema. Of the infectious diseases, tuberculosis, pneumonia, diphtheria and influenza have been complicated by this condition. Clark and Synnott[1] in 1919 observed a number of

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fatal cases of epidemic influenza which showed a peculiar accumulation of gas in the mediastinal tissue spaces upon autopsy. They were unable to demonstrate bacteria in this "gas" and they were of the opinion that it was of pulmonary origin and reached the mediastinal tissue spaces purely as the result of mechanical factors. They also described the interstitial rales heard over the precordium.

In 1937 Louis Hamman[2] reported a series of six cases seen during a four year period in which he was able to demonstrate the presence of air in the mediastinum and in which the onset was spontaneous, without trauma or unusual effort. One case even began while the patient was asleep. In 1939[3] Hamman reported another case which had onset of pain while the patient was eating lunch. Scott[4] in 1937 reported two cases of mediastinal emphysema but onset in one of his cases began after the patient had completed a one hundred mile bicycle race and in the other after the patient had completed a one half mile foot race. These cases hardly can be considered as spontaneous. In 1939 Morey and Sosman[5] reported a single case with onset while the patient was working in a laboratory and Caldwell[6] in 1941 reported a single case.

Of interest is the fact that all cases of spontaneous mediastinal emphysema thus far reported have been seen in males and all have been young males except one of Hamman's cases which was 51.

In an effort to explain the pathology of this condition Hamman[2, 3] postulated that air reached the interstitial tissue spaces of the lung following rupture of an alveolus and traveled along connective tissue spaces in the lung to the root of the lung and thence into the mediastinum. The interstitial pulmonary air also may travel to the periphery of the lung where a bleb may form beneath the pleura, rupture of which would result in spontaneous pneumothorax. Some of the reported cases have had an associated spontaneous pneumothorax.

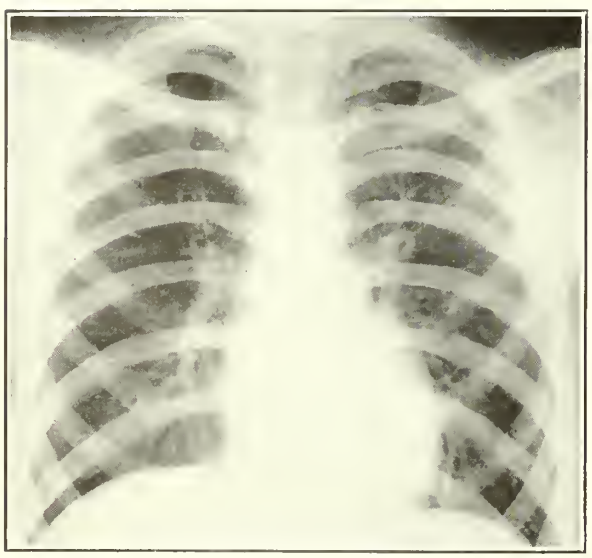


Fig. 1. Roentgenogram of chest on admission.

Hamman's theory was confirmed by experimental work of Macklin[7] who overinflated local areas in the lungs of cats and demonstrated air in the pulmonary interstitial areas as well as in the mediastinum. Macklin[8] also pointed out that many of the cases reported followed mild upper respiratory infections and he postulated that the infectious process caused a local area of atelectasis which in turn caused a small area of compensatory emphysema in which the dilated alveolar walls ruptured causing the interstitial pulmonary emphysema and consequently mediastinal emphysema.

The symptoms and signs of this condition were first described by Hamman[2] and subsequently confirmed by others.[5, 6] They are as follow:

1. Pain in the precordial area which may be severe and may simulate coronary disease.
2. Appearance of a peculiar, crunching, crackling sound which may be audible to the patient or to those about him and is synchronous with the cardiac systole and frequently loudest when the patient lies on his left side. This sound may at times be heard only with the aid of the stethoscope.
3. The area of cardiac dulness is diminished or absent.
4. Air may be present in the tissues of the neck.
5. Air may be demonstrated in the mediastinum and in the neck tissues by the roentgen ray.

The treatment of this condition has been expectant with the use of sedatives and analgesics and no fatal cases have been reported. Recovery has occurred always within a few days but recurrences have been noted.

REPORT OF CASE

W. H., white male, aged 15, student, entered the medical service at 1:30 p. m., January 10, 1941, complaining of retrosternal pain of approximately twenty-seven hours duration.

This boy was quite well except for a slight head cold until the morning before entry when suddenly while he was sitting in his classroom he noticed a sharp pain in the lower anterior part of his neck. During the lunch hour he had some pain in his neck on swallowing food. However, the pain remained bearable until school was dismissed in the afternoon and he was able



Fig. 2. Lateral view of neck showing air in various fascial planes.

to walk home. Upon his arrival at home the pain became quite severe and occupied the entire retrosternal area. The pain was accentuated by deep breathing and swallowing and was extreme when he was lying down but was partially relieved by the erect position. The family physician was summoned and he administered codeine which gave some relief and the boy was able to sleep in the sitting position. The following morning the pain was somewhat better but when the family physician again saw the boy, he advised hospitalization. Of importance is the absence of history of exertion, severe coughing, forced expiration or of trauma to the chest just prior to the onset of the pain. He had not engaged in any athletic activity during the two days prior to onset. Past history revealed nothing contributory to the present illness.

Physical examination revealed a well developed, well nourished white male lying flat in bed. He appeared neither acutely ill nor in marked distress. On being moved from side to side he complained of retrosternal pain and slight dyspnea. There was no evident cyanosis. Temperature was 98.4 F., pulse 84, respiration 18, blood pressure 120/74.

Significant physical findings were confined to the neck and chest. The trachea was in midline and in the area bounded by the jugular notch and the sternomastoid muscles definite crepitus of subcutaneous air was felt. This crepitus was felt also in the supraclavicular area on the right and was felt by the finger introduced into the mouth and palpating the pharyngeal wall on the right.

Examination of the pulmonary fields showed normal resonance, fremitus, vesicular to bronchovesicular breath sounds throughout and no rales. The cardiac area of dulness was not obtained clearly and a resonant percussion note was obtained over the sternum. The apex impulse was felt in the fifth intercostal space just within the left midclavicular line. With each apex impulse was felt a crepitant sensation. Upon auscultation of the cardiac area the heart tones were noted to be distant and a crackling, crunching sound was heard over the entire precordial area. This crackling was accentuated by respiratory and other thoracic movements. When the patient held his breath the crackling sound was heard to be synchronous with the heart beat and was loudest when the patient was placed on his left side. The crackling was not audible without the aid of the stethoscope. A systolic murmur was present in the second right interspace. Roentgen ray examination of the neck and chest (figures 1 and 2) showed free air to be present in the area about the heart and great vessels as well as in the soft tissues of the neck, along the fascial planes. Laboratory examination showed the urine normal; the leukocyte count was 8,150 per cu. mm. with a normal Schilling hemogram. The serology was normal and blood chemistry gave results within normal limits. A tuberculin test using 0.1 cc. of 1:100 old tuberculin intradermally showed no reaction in twenty-four and forty-eight hours.

Treatment was entirely expectant. On the day following admission the crackling noise was still present over the heart, particularly at the left border of the heart, and the subcutaneous emphysema was still present in the neck. These signs gradually disappeared and were absent by the fourth day. The boy was up and about on the third day and was discharged on the seventh day. He was seen in two weeks and six weeks and had had no recurrence of signs or symptoms and roentgen ray of the chest on these occasions showed nothing abnormal.

SUMMARY AND CONCLUSIONS

1. The occurrence, causes and mechanism of spontaneous interstitial mediastinal emphysema are discussed briefly.

2. The literature on this condition is reviewed to date.

3. An additional case of spontaneous interstitial mediastinal emphysema is described completely including roentgen ray studies showing the pathway of the air along the fascial planes.

4. Conclusions as to prognosis are drawn.

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FOOT CONDITIONS

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A pair of serviceable feet is something of an economic asset as well as a health requisite. Yet it is only recently that foot complaints have been considered sufficiently important to discuss before scientific meetings and postgraduate assemblies. This is not easily explained. Certainly it cannot be true that foot complaints have been less debilitating or less frequent in past years—the flourishing business that has grown up and that has placed the care of the feet largely in the hands of the department stores would belie this theory. Nor would I attribute it to the fact that it ill becomes a physician to discuss matters so prosaic as aching feet. Aching feet of static etiology can produce cripples just as surely as the seemingly more devastating infectious and nervous diseases.

There are some twenty-six bones and as many joints in the foot of anatomic structure common to the bones and joints in any other part of the body. They are small, shallow, assume a greatly disproportionate role of weight-bearing for their size and are susceptible to any affection involving other and larger structures. The tendency, therefore, to ascribe any complaint of the foot to the category of arch trouble or foot strain would be an erroneous one.

Let me briefly review some of the other possibilities. The small bones, while gaining great strength from contoural arrangements, singly are relatively

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fragile, and when directly subjected to traumatic force may fracture without the obvious pathologic symptoms and pain that attend the breaking of larger bones. Traumatic sprains are recognized by their mode of onset. In the growing foot there are numerous epiphyses that are subject to disease just as much as are the epiphyses in any other part of the body. They are, moreover, subject to deformity and destruction because of their weight-bearing role. Among these various epiphyseal lesions are included Kohler's disease of the navicular (scaphoid), Freiberg's disease of the heads of the second and third metatarsals and apophysitis of the os calcis. There are various conditions involving the muscles and the blood vessels. There are the various inflammatory conditions which may involve the foot such as tuberculosis, syphilis, pyogenic infections, gout and the acute and chronic arthritides. Bone tumors are revealed in the roentgenogram while soft tissue tumors are usually superficial enough to allow for ready detection and diagnosis. This rather sketchy résumé may serve to emphasize that a foot complaint requires as much respect as complaints in any other part of the body, that it may require not only a skillful local examination but often a general constitutional check-up before adequate treatment can be prescribed and, finally, that a department store is hardly the place to obtain these things. But setting aside all these lesions because they are too numerous to discuss adequately in a brief time, attention will be directed solely to the static disabilities of the foot—the sort of feet that, going down for the third time in their sea of tribulation, have had tossed to them a pair of commercial arch supports.

NORMAL PHYSIOLOGY

The principal movements utilized by the foot in walking are plantarflexion and dorsiflexion. Dorsiflexion is produced by the anterior group of leg muscles and plantarflexion by the posterior group of leg muscles. The plantarflexors comprise a group of eight muscles; the dorsiflexors a group of three muscles. Yet for purposes of standing and locomotion these opposing muscle groups are structurally balanced. The tibialis anterior and tibialis posterior muscles of the anterior group sustain and strengthen the longitudinal arch. When for some reason this balance between the two opposing groups is upset, foot strain results.



Fig. 1. Pes valgoplanus in a child demonstrating the marked valgus deformity of the os calcis accompanying the pronation of the ankles and flattening of the longitudinal arches.

Given a disturbance in this balance, the relative positions of the various bones of the foot are changed and static deformities with their accompanying disability are produced. The base of the calcaneus rolls outward giving a valgus deformity to the heel; in the area of the longitudinal arch the tarsus goes into pronation. This picture of the pronated ankle and lowered longitunal arch will be recognized as flatfoot or pes valgoplanus (fig. 1). Sooner or later it is accompanied by metatarsalgia. Such a combination presents the most common of all foot complaints and the one most frequently encountered clinically.

ABNORMAL PHYSIOLOGY

Infants are the only members of the human family to whom it might be said that "flatfoot" or pes valgoplanus rightfully belongs. Their feet are immature, the bones not yet having attained full contour and size nor their ligaments sufficient strength to tie up the osseous assemblage into anything like a sustaining structure. But as need for the latter eventually develops, the pes valgoplanus position evolves into one approximating the normal type for locomotion. By the time children have reached the age of 5 or 6 years this transformation should be more or less complete.

Beyond this age level, the pronation of the foot and the lowered longitudinal arch may persist under abnormal influences. Shoes, defective either as to structure or to size, may hamper the further progress of the foot's development.

After the siege of a generalized illness, children sometimes are returned to school and to their normal activities before a proper period of convalescence has been allowed. The keeping abreast with the routine of their normal classmates depletes their already weakened condition and postural fatigue results—a generalized reaction in which is included further weakening of the foot.

The adolescent is heir to the defects of childhood. He may have been the subject of these abnormal influences and, when they have not been corrected, carries them into his later stages of development. Even at this age, children may possess rather definite static deformities of the feet without being conscious of symptoms. It may be only when they assume the more exacting and prolonged duties of adult activity that their disability really becomes manifest. To the foregoing, new factors are added. Rapid growth may occur, several to three inches in height occurring in a time so brief that adequate readjustment fails to be made and the pronated flattened feet thus become units in the general picture of poor body mechanics. Excessive and disproportionate gains in weight may alter previously normal feet in much the same fashion. It is just as important to regulate the physical activity of per-

sons of this age as of younger groups. If, either because of the occupational demands of employment or zeal in athletics, prolonged standing, walking or running occurs, static foot disabilities will be produced by the resulting muscle fatigue and imbalance.

SYMPTOMATOLOGY

Patients who are suffering from foot conditions do not always have smooth and engaging dispositions. They have been led along devious routes of dubious therapy to find no relief at the end. They have been mishandled by various nonprofessional pretenders whose business eye and advertising ideas may be excellent but whose scientific integrity is seriously to be questioned. There is little wonder that the patient's normally robust disposition has worn thin and frayed at the edges—that he is resentful and difficult to approach. Sometimes, upon his first visit to the office, he brings with him a bag of various commercial arch supports and foot-relief devices accumulated over the passing years. This eloquent bag is placed on the physician's desk with the curt statement that his feet hurt, accompanied with a yet more curt look—a sort of visual "I dare you to try to give some relief."

His complaints are both generalized and local. He is fatigued, irritable and unhappy. His heels ache, or the ball of his foot burns, or pains shoot upward from the toes toward the ankle and leg; or the discomfort may center entirely about the longitudinal arch on the medial side of the foot. Toward the end of the day he may find his ankles swollen, his feet abnormally perspiring and his calf and thigh muscles aching. His ankle joint, his knee joint or his lower back may be aching quite keenly. Indeed, his mental depression is understandable.

THE EXAMINATION

Examination of the foot should be preceded by an analysis of the patient's manner of walking. The integrity of his lower back, hip, knee and ankle joints is checked during the course of a general postural survey. Making sure that no pathologic condition is present in these various joints, as well as in the bones which might produce a valgus or varus deformity, his walking is studied for the presence of a limp, toeing in or toeing out, inwardly sagging ankles and so on. His feet proper are examined in the sitting or non-weight bearing and in the standing or weight-bearing positions. Also, his feet are examined as to their circulation, their innervation, their skin, soft tissue and bone.

The anterior and posterior tibial vessels are superficial and their pulsations are readily detectable. A dusky color of the toes is usually present in severe cases of strain but does not necessarily imply vascular occlusion. If the history hints of intermittent claudication, elevation of the extremities and observing the intensity of the blanching is a helpful observation. Any motor or sensory disturbances should not be overlooked. Besides the color of the skin, one looks for any signs of inflammation such as thrombophlebitis, bursitis, cellulitis. The presence of callosities is an important clue to abnormal weight-bearing areas, and plantar warts should not be overlooked even though buried beneath a superficial thickening of callus. In relation to the skin, the nails are observed for any disease, deformity or ingrowing tendencies. The bones are studied for disease, deformity, subluxation or fracture. Roentgenograms are indispensable in disclosing painful bone conditions that are otherwise not clearly evident on physical examination. While the patient is sitting the contour of the arches is observed, the length of the tendo achillis is tested and any contractures of the plantar fascia detected. With the patient standing, the arches again are surveyed for flattening, the forefoot for abduction, the ankles for pronation or swelling and the heel for valgus deformity. Last but not least the shoes he wears are examined for size, style, the thickness of the soles, the nature of the shank, the height of the instep, the general outline of the last. Most patients will be found to possess shoes that are both too narrow and too short. Socks and stockings also are checked for adequate size.

TREATMENT

The care of the feet properly begins with control of the shoes. Tight shoes whether too short or too narrow crowd the bones together creating deformities and abnormal weight-bearing surfaces. In crowding the bones they inhibit motion in the various joints producing atrophy of the intrinsic muscles. Because of this the foot, when released from the tight shoe, spreads abnormally under weight-bearing. Patients are apt to describe this phenomenon indirectly when they complain that each new pair of shoes must be of a larger size. Many of the more frequent deformities such as hallux valgus, hammer toe, bunions and exostoses over the bases of the fifth metatarsals are produced directly by faulty shoes.

What kind of shoes should one prescribe? In the treatment of feet one soon learns that shoes must be adapted to function. This principle is applicable to men as well as to women. For the normal child, the shoes should have a well rounded toe, the leather sole of which should be of adequate thickness and the shank sturdy but flexible. In children who are overweight with weak or pronated ankles the shank should be stiff and corrections to be outlined later are added. For men, the shoe is best of a rounded toe, of soft leather, of a thick leather sole and of adequate length and width. Women are prescribed shoes that conform to their various activities. Generally women have come to understand that for comfort and efficiency, different types of shoes must be worn for different activities. When she hikes she does so in low heels and rather heavy leather soles; when she shops she uses a well constructed oxford with a stiff shank; and for evening, French heels are employed if desired.

Patients should be taught to avoid getting their shoes wet in the rain; to accumulate a number of pairs of shoes so that they can alternate from day to day; that those not in use should be kept straight by means of shoe trees; that for ordinary use shoes should have rubber rather than leather heels, and leather rather than rubber soles; and that a foot powder should be dusted routinely into the shoes to reduce the friction of the foot in the shoe while walking.

Prolonged Standing.—For the individual who is subjected to prolonged standing including surgeons, house officers, nurses and shopkeepers, symptoms generally result from relaxed foot muscles and ligaments following undue fatigue. The arches flatten out, abnormal weight-bearing occurs and pain, swelling and areas of tenderness appear. For periods of prolonged standing shoes should be roomy and conform to the shape of the foot. The shank of the shoe should be stiff to insure and prevent flattening of the arches and pronation of ankles. If patients in this classification already have some static foot disturbances, felt arch supports are fixed in the shoes and the patient is required to wear a pair of corrective shoes for a given period each day. These corrective shoes, to be described later, afford a daily period of active corrective exercise for the intrinsic muscles of the foot and muscles of the leg.

Prolonged Walking.—The individual whose occupation demands walking the greater part of the day should wear shoes that have a broad base heel, preferably rubber, and a fairly thick leather sole. If he is subject to foot strain, he will develop an abnormal gait to avoid painful weight-bearing areas. This alters completely the normal balance of the muscles of the feet, legs and thighs. With flattening of the arches and abduction of the forefoot a tendency develops to lift the feet up and place them down again. This is in contrast to the normal, rhythmic gait that progresses unconsciously from heel to toe by a transference of weight from the outer border of the heel across the inner border of the forefoot toward the great toe (fig. 2). Regulation of the gait back to its normal status is important in the treatment of flatfoot. The ever present hard walking surfaces make this a real problem. Experience seems to demonstrate that normal function of the foot in continuous walking over hard, unyielding surfaces is best obtained by means of the comma-shaped metatarsal bar and Thomas heel of the corrective shoe.

The Corrective Shoe.—To treat flatfoot by prescribing casually for the patient a pair of commercial arch supports is simply a means of temporarily deferring the trouble toward which he is heading. One of the underlying causes of his condition is weakness of the muscles that support the arches and imbalance of the muscles that maintain the weight-bearing line of the ankle. Because of these factors he has gotten away from the normal gait and into an abnormal habit of walking. Commercial arch supports will never bring back muscle balance or correct the gait and therefore will never for any prolonged period correct the patient's deformities. For static foot disturbances the Hauser corrective shoe seems to be the most satisfactory type of therapy. The principle underlying the corrective shoe is entirely a physiologic one. It serves as a really corrective agent rather than a palliative crutch as



Fig. 2. Normal walking is not only characterized by a rolling heel-to-toe gait but also by the weight being shifted from the outer border of the foot across the metatarsal heads to the inner border of the foot and the "push-off" by the great toe.

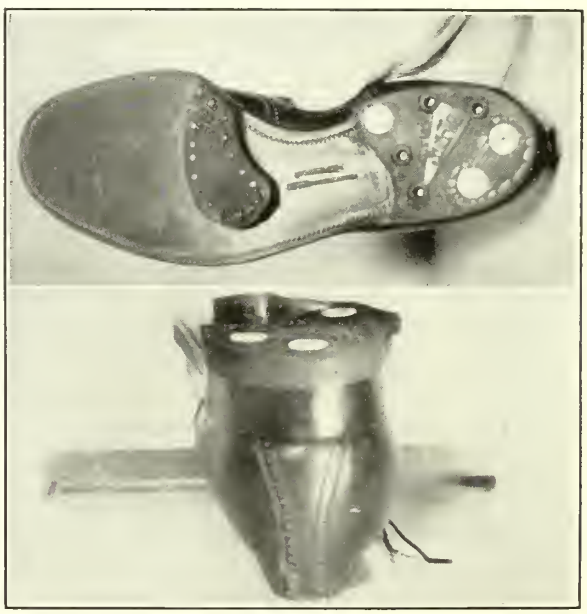


Fig. 3. The Hauser corrective shoe. A. Comma-shaped metatarsal bar and Thomas heel. B. Demonstrates the reverse inclined planes of metatarsal bar and heel.

are many of the types of rigid arch supports. The normal gait is characterized by the following: the heel strikes the ground first along its outer border and the position of the os calcis is therefore in the upright or slightly varus position; weight then is transmitted along the outer border of the foot until the metatarsal area is reached where the weight is deviated medially toward the head of the first metatarsal when the great toe pushes off in the final phase of the gait. This is therefore a rolling gait from heel to toe and from the outer border to the inner border of the foot. The corrective shoe has a flexible shank and a Thomas heel with an inner elevation of one sixth to one fourth of an inch. On the sole is placed a comma-shaped metatarsal bar with an outer elevation of one fourth inch. It will be seen that the heel has an inclined plane which is the reverse of the metatarsal bar (fig. 3). When walking in these shoes, the patient walks on the outer border of the shoe due to the outward tilt of the heel until weight comes to the forefoot. Then the outer elevation of the metatarsal bar shifts the weight automatically across the foot to the inner border for the push-off of the great toe. In this way the gait of the patient is regulated automatically into the normal pattern and all the leg muscles are exercised in a balanced manner. Correct general posture is emphasized and becomes a very necessary part in the training of correct weight-bearing of the feet. The head is held up and back rather than being allowed to drop forward and downward. The chest is elevated and the abdominal muscles kept in and taut. The anterior tilt of the pelvis is corrected to eliminate sway-back. Then the normal gait in corrective shoes is practiced.

Prolonged Sitting.—For the person whose occupation is almost completely sedentary the shoes should be at least large enough for the foot. Shoes that are too tight will cause intermittent cramps and necessitate their being removed at intervals. Persons of sedentary occupation are required to use corrective shoes at least a portion of each day in order to maintain normal tone and balance of the foot and leg muscles.

Arch Supports.—There are various types of arch supports. The commercial ones are placed on an insole that can be inserted into the shoe and may therefore be transferred from one pair of shoes to another. The material used ranges from steel and solid leather to cork and sponge rubber. I prefer to use a high grade of gray or white felt. The pads are fashioned individually, the size being adapted to the patient's particular arch. They are never based on a leather insert but are fixed in place in each shoe so that once set they are immovable. The metatarsal areas are at times different in the case of each foot so that commercial arch supports cannot possibly be adequate in assymetrical feet. The most important supports to fit are the metatarsal pads.

Metatarsal Supports.—These felt pads are fashioned to fit each foot and are placed immediately behind the metatarsal heads and beneath the metatarsal necks. If there is some doubt as to the position, the patient is made to stand in the shoes for a while and then the imprint of the pad checked beneath the metatarsal area. For the short first metatarsal as described by Morton, where painful callus has accumulated beneath the head of this bone, a special pad devised by Dr. Fred Jostes is inserted into the shoe.

Longitudinal Arch Supports.—The importance of fashioning these pads is to avoid making them too high and to see that they are not placed too far posteriorly so that the patient feels pain along the inner anterior border of the os calcis. In most flat feet, there is usually a flattening of both these arches—the metatarsal as well as the longitudinal—so that combination arch supports are inserted.*

There are numerous ways in which shoes may be corrected further to meet the needs of the particular case. For mild pronation of the ankles, an inner elevation by means of a leather wedge on the inner border of the heels may suffice; if the pronation is more marked, a Thomas heel may be more efficient. In addition to the inner lifts on the heels a short Dutchman on the outer border of the soles beneath the head of the fifth metatarsal may be indicated. Metatarsal bars may be prescribed for pes cavus deformities with claw toes.

Physiotherapy and Other Aids.—If the foot strain is of the acute spastic type, it may be necessary to discontinue all weight-bearing for a time. The patient is placed in bed and continuous warm compresses are applied to both feet until the muscle spasm disappears. In less severe cases, splinting by means of adhesive strapping is carried out. In acute and chronic cases in which there is more or less persistent swelling, Unna paste boots or variations of Unna paste plasters are applied until the swelling is completely controlled. The most important exercise that is prescribed for flatfeet is that of the daily use of corrective shoes. While these are being obtained, two types of exercises are given: one for strengthening the anterior tibial muscles and the other for stretching the heel cords. Normal gait is practiced in uncorrected shoes. As part of foot hygiene, the feet should be bathed and massaged daily. Contrast sprays or contrast baths are ordered to be taken twice daily during the active course of foot treatment.

In conclusion, an attempt has been made to direct attention to the importance of foot disabilities, to the adverse effect they may have upon the psychologic state as well as the physical health of the sufferer, and to the futility of assuming that a pair of commercial arch supports will solve all foot problems.

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*Clinical exhibits were offered of metarsal, longitudinal arch pads, the combination of the two foregoing, as well as combinations of the two pads having reverse inclined planes.

CONGENITAL DUODENAL OBSTRUCTION

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Congenital obstructive lesions of the duodenum are sufficiently uncommon to warrant a report whenever they are found. Since the great majority of such obstructions occur proximal to the third portion of the duodenum, such a congenital anomaly located in the third portion, will be recognized as exceedingly rare.

An estimate of the incidence of these conditions is difficult due somewhat to the confusion of the literature but perhaps more to a revision of ideas, necessitated by the progress of medical science since the first case was reported by Calder[1] in 1732. From 1732 to 1912 reports have appeared from Baron,[4] Thomas,[9] Moore,[10] Cordes,[17] and Spriggs.[24] These have been largely the records of autopsy findings or the results of surgical explorations and it is significant that, in the excellent papers of both Cordes and Spriggs, the prognosis in congenital duodenal obstruction was considered hopeless. No patient so far had survived, regardless of the type of therapy. Theremin[8] in 1877, reported nine cases in a series of 150,000 autopsies in St. Petersburg and two cases in over 111,000 autopsies in Copenhagen. The first patient to be treated successfully by surgery was reported by Ernst[26] in 1916, when he also presented two cases in a series of 41,000 autopsies in Copenhagen. St. George,[27] in 1918, was able to find only two cases in a study of the necropsy records at Bellevue Hospital over a period of fourteen years. Between 1916 and 1931 the number of cases was increased by reports from Rixford,[29] Freeman,[30] Denzer,[31] Jewesbury and Page,[33] Richter,[35] Bolling,[37] Stewart,[39] Weeks and Delprat,[40] Sweet and Robertson,[41] Judd and White,[42] Madigan,[52] Cutler[60] and comprehensive studies also were made by Davis and Poynter[32] and Webb and Wangensteen.[46] During this period, although an occasional new case was revealed by necropsy, it is encouraging to find that the majority of cases were treated successfully by surgery. Farr and Fries[36] at that time estimated the incidence as one in 20,000 newborn infants. Since the report by Ladd[47] of ten cases in 1932, followed by an additional twenty-eight cases by the same author[56] in 1937, there have appeared in the literature cases by Lee,[48] Carter,[49] Kellogg and Collins,[51] Morton and Jones,[54] Donovan,[55,57] Stenson,[59] McIntosh and Donovan,[61] Bunch and Doughty[62] and others. During this last period one is impressed not only with the increased frequency with which these cases are being reported but also by the fact that recovery of the patient is almost the rule. Accordingly, from this review, while it is granted that congenital duodenal obstruction is rare, it is also obvious that the seeming rarity may not be because of actual low incidence but rather because of failure of diagnosis and a tendency to temporize in questionable cases until a fatal termination results.

In dealing with congenital abnormalities of the gastrointestinal tract, a knowledge of the normal embryologic processes of this system is important. Excellent descriptions have appeared in the surgical literature by Frazier and Robbins,[25] Dott,[34] Hecker, Grunwald and Kuhlmann,[38] Haymond and Dragstedt,[45] Ladd,[47] Gardner and Hart,[50] Wakefield and Mayo[53] and McIntosh and Donovan.[61] Textbook sources are decidedly inadequate.

Congenital duodenal obstruction may be classified conveniently as resulting from factors which are either extrinsic or intrinsic in origin. Extrinsic factors include: (a) developmental errors, of which may be listed (1) abnormalities of rotation which produce kinking as the result of lack of fixation or abnormal fixation of the gut, (2) volvulus, (3) annular pancreas, (4) vascular abnormalities resulting in disturbed vascular supply as well as aberrant vessels, (5) persistence of hepatoduodenocolic ligament; (b) prenatal pathologic processes such as (1) mesenteric cysts and tumors, (2) abnormal adhesive bands, (3) neoplasms of related organs such a kidney, liver or pancreas, (4) intussusception, (5) hernia, (6) pressure of the head of the pancreas. It is obvious that such factors usually are demonstrated easily and their mechanisms are well understood.

Intrinsic factors consist of (a) atresia, (b) stenosis and (c) valve or membrane formation. It is appropriate here to mention, as has been so well pointed out by Stenson,[59] that the terms occlusion, atresia, stenosis and aplasia frequently are used interchangeably. An occlusion is a complete closure of the lumen and frequently is referred to as a complete obstruction. Atresia presupposes the existence, at some time in the development of the bowel, of a lumen, of which there is subsequently complete (occlusion) or partial (stenosis) obliteration. Aplasia is the absence of the development of a lumen, i. e., a condition in which the lumen never did exist. The etiology of these intrinsic factors has never been established conclusively and remains largely theoretic. Tandler,[13] in 1900, observed that the duodenal lumen is obliterated completely between the fifth and sixth week by a proliferation of its epithelial lining with occlusion apparently resulting. This observation is accepted quite generally, with modification, as the basis for stenosis, atresia and membrane or valve formation. Saunders and Lindner[63] have taken exception to this and point out that "atresia also occurs at levels where such proliferation does not take place." They have also justly rejected the theory of Bland-Sutton[12] that abnormalities of development are most likely to occur at the sites of greatest embryologic activity. Meckel,[2] Balfour,[6] Kreuter[20,22] and Cautley[28] believed that the duodenum failed to acquire a lumen in embryonic life. MacCallum,[7] Weber,[11]

Filimowski,[14] Tandler,[16] Schridde,[21] Johnson[23] and Simpson[58] subscribed to the theory of obliteration in the course of development by epithelial proliferation. Kuttner,[5] Wyss[15] and Davis and Poynter[32] suggested that changes in the vascular system of the intestine were responsible while a few (Fiedler,[3] Theremin[8] and Savariaud[18]) advocated an inflammatory origin. It has been observed definitely, however, that congenital duodenal obstruction due to intrinsic factors frequently is associated with abnormalities elsewhere in the gastrointestinal tract, especially in the biliary system; also that such obstructions usually occur just above or just below the ampulla of Vater, with the greatest number located in the second portion of the duodenum. Complete atresia is found more frequently than stenosis in all locations. Both atresia and stenosis are much more frequent than valve formation.

Congenital duodenal obstruction, regardless of type, is almost universally accompanied by vomiting. This is the most constant and prominent symptom and varies only with the degree and location of the obstruction. In the intrinsic types, when due to atresia, the vomiting begins soon after birth or at the time of the first feeding and usually recurs with each subsequent feeding. The vomiting is forceful, of the projectile type and the vomitus consists of the food just taken, blood (hematemesis has been noted in 65 per cent) and may or may not contain bile. The presence of bile seems somewhat dependent upon the location of the obstruction. If the lesion is below the ampulla, or is above but producing incomplete obstruction, the vomitus may contain bile. If the lesion is below, with or without complete obstruction, the vomitus will contain bile. With partial or complete obstruction above the ampulla there usually will be some bile in the stools, whereas, if this occurs below the ampulla, the stools may show an absence or depletion of bile. Bile usually is found in the vomitus regardless of the location or completeness of the obstruction and this has not been explained satisfactorily. Many cases have been reported in which at necropsy complete obstructions were found above the ampulla, yet there had been bilious vomiting. Although some cases may have had accessory bile ducts which were not identified, it is most improbable that this was the case in all. The epigastrium is distended and if the lesion is above the ampulla, visible peristalsis may be seen frequently if looked for, the condition closely simulating congenital hypertrophic pyloric stenosis. Pain usually accompanies the peristalsis and vomiting. One should not be too complacent if, in the face of such history, no abnormal physical findings can be made out as this is commonly the case if the patient has just vomited.

Obstructions due to stenosis more commonly produce intermittent symptoms and these frequently are delayed in their appearance as compared with those resulting from the atretic types. In such cases the peristalsis is often seen to travel downward and from right to left, although it may follow the course of the duodenum from above downward to disappear into the right hypogastrium.

In both atresia and stenosis, the epigastrium is usually prominent and the hypogastrium appears flat or sunken.

In the extrinsic types of obstruction, as from volvulus or faulty rotation, vomiting may occur soon after birth but may be delayed for several weeks. Regardless of how long delayed the first appearance of symptoms, these infants do not attain the development of normal children. Early vomiting is more common with periods of remission but with failure to recover and acute obstruction may take place at any time. Since volvulus is associated with marked obstruction and severe vascular derangement, the symptoms are severe and delay is dangerous. There may be no evidence of distention because, in volvulus formation, pressure often is exerted first upon the duodenum. Although distention is associated commonly with the extrinsic types of obstruction, it is usually of little value in the differentiation between high and low obstruction except when visible peristalsis is present. When incomplete obstruction exists, the condition may be carried into adult life. In older children, the vomiting continues, is associated with cramp like pain which is relieved by vomiting and chronic starvation results. Kantor,[43,44] in an excellent comparison of roentgen studies with operative findings, has estimated that from 4 to 5 per cent of all epigastric complaints in adults are the result of congenital anomalies.

It is important, in the diagnosis of congenital duodenal obstruction, that the possibility of its existence be kept in mind, suspicion being a large factor in any diagnosis. Therefore, persistant bile stained vomiting in any infant, in the absence of cerebral injury or infection, is highly suggestive of a congenital abnormality of the intestinal tract. Symptoms occur in the first two days in 65 per cent and within the first two weeks in 85 per cent. As usual, a detailed and carefully taken history is of the utmost importance. Although the history together with a thorough physical examination may result in the diagnosis of obstruction, the roentgenoscopic and roentgenographic study of the patient is valuable and is imperative in determining preoperatively the location of the lesion. The judicious use of barium for the detection of suspected high intestinal obstruction should be kept in mind for, should the involvement actually be located in the lower tract, an acute obstruction might easily be precipitated. If any suspicion or suggestion of complete obstruction exists, a barium enema should be given first. In children under 1 week of age, it is suggested that a flat plate of the abdomen be taken first. If this reveals, by the presence of gas in various segments along the intestinal tract, that complete obstruction does not exist, it may be considered safe to administer barium by mouth. It should be remembered that milk, be-

cause of its curd formation in the stomach, is not a satisfactory media for the administration of barium in these patients. Water serves much more satisfactorily and a thin suspension is desirable.

One must always consider congenital hypertrophic pyloric stenosis, intracranial lesions, enteral or parenteral infections and functional vomiting in the differential diagnosis.

In congenital hypertrophic pyloric stenosis the vomiting usually appears after the first week. The vomitus rarely contains bile. Since it is possible for errors of rotation to simulate pyloris stenosis, the presence of a palpable mass and visible peristalsis can only indicate positively that obstruction is present. Roentgen study should be resorted to if any doubt exists. In either case, careful observation is extremely important in all cases of continued early vomiting.

In considering intracranial lesions and infections, it is well to remember that in birth trauma, hemorrhage and some forms of meningitis from early sepsis, vomiting may be a most prominent symptom. In such cases the primary cause usually is demonstrated easily to lie outside the gastrointestinal tract. Except for mengingitis, most parenteral infections of early life are associated with marked diarrhea and little or no vomiting. Vomiting is much more prominent in obstruction of the gastrointestinal tract. As pointed out by McIntosh and Donovan,[61] "it is very important in infants, that the passage of starvation stools, composed mainly of mucus which is bile stained, should not be mistaken for true diarrhea."

Functional vomiting is a term used to indicate vomiting for which no organic cause is found. Exact definition is difficult. It usually appears simultaneously with the first few feedings and terminates spontaneously within a few days. Frequently, however, this may persist to the point of becoming a serious problem. The vomitus is rarely bilious and, if so, is only temporary. The presence of bile in the vomitus should again excite suspicion of organic obstruction. In vomiting which persists to an appreciable degree, roentgen study should be carried out. It is unfortunate that many older patients are accused of having worms, food allergies, appendicitis, gastritis, acidosis, foci of infection, cyclic vomiting and constitutional inadequacy when, in reality, their complaints are due to congenital anomalies.

If obstructive symptoms first develop at a later age one must consider internal hernia, volvulus, tumors or intussusception and the diagnosis is not always easy.

A positive clinical syndrome plus roentgen findings of complete block with dilatation of the stomach and duodenum is suggestive of atresia. If the obstruction is incomplete one must suspect stenosis of intrinsic origin, volvulus or the presence of constricting bands. Careful observation in all cases is extremely important. As McIntosh and Donovan[61] have pointed out, "A mistake in diagnosis is costly only if conservative therapy is unduly prolonged." Without interference, death occurs from complete obstruction in from one to twelve days (average five days), it being prolonged if the obstruction is incomplete.

The treatment of congenital duodenal obstruction is surgical. Since the etiologic factors vary, no one procedure can be utilized and surgery must be adapted to the individual case.

For the relief of obstruction of the intrinsic type, the procedures of posterior gastro-enterostomy, anterior gastro-enterostomy, posterior duodenojejunostomy and enterostomy have been used with varying degrees of success. Posterior gastro-enterostomy, possibly because of its relative ease of performance, perhaps has been the most frequently used method. Chief disadvantages of the procedure are (1) tendency to reflux of food from the duodenum into the stomach and (2) neutralization of the hydrochloric acid in the stomach by bile and pancreatic juices. This is especially true in atresia since all secretions from or into the duodenum must pass through the stomach. Anterior gastro-enterostomy possesses similar advantages and disadvantages but in addition has the objection of inadequate drainage of the duodenum due to difficulty in making the stoma sufficiently low. Also with this anastomosis, distention of the colon may easily produce serious mechanical interference with function. Posterior duodenojejunostomy, when utilizable, seems to be the most satisfactory and logical method. This produces the least alteration in the normal intestinal processes, more adequate drainage of the duodenum is obtained and there is less chance of later obstruction. In this procedure, however, one is confronted with definitely greater technical difficulties due to lack of mobility of the duodenum and extreme thinness of the duodenal wall. When the duodenum has undergone enormous dilatation from obstruction of the terminal portion, an even greater opportunity for leakage of the anastomosis is possible and peritonitis from such accidents is frequent. Fatal termination usually results. Any form of enterostomy is obviously unsatisfactory. Its use can be considered as only preliminary to some secondary procedure, the original use of which would probably add little to the risk. More important is the fact that newborn and young infants do not tolerate enterostomy, all cases in which it has been used having resulted in fatal terminations. Enterostomy has no place in therapy here.

Additional procedures must be used for the correction of obstruction from extrinsic factors. Anastomotic operations usually are unnecessary unless accompanied by intrinsic obstruction. In volvulus, in which the small bowel is usually the source of the trouble, the entire small intestine should be delivered from the abdomen and the volvulus unrotated. Upon replacement of the bowel within the abdomen it is usually unnecessary to produce fixation as recurrence is infrequent following correc-

tion. Abnormalities of rotation of the colon are best treated by mobilization of the cecum, ascending and proximal half of the transverse colon from right to left, after which there is complete exposure of the duodenum. Any constricting bands or folds are also severed.

Preoperatively, attention should be given to the complete elimination of any barium administered for diagnostic purposes. Every effort should be made to restore to normal the fluid and electrolite balances which, in many cases, will have been seriously disturbed by the perversion of gastric function. Small blood transfusions also may be helpful.

The most satisfactory approach for most of these conditions is by means of an upper right rectus or right paramedian incision and it is important that it be of sufficient size to permit good visualization and the easy delivery of the mobile portions of the bowel to the exterior. At operation, the small bowel which lies distal to the obstruction is frequently so contracted from disuse as to render extremely difficult, if not impossible, any anastomotic procedure. Clogg[19] has offered the ingenious solution of this problem by suggesting that in such circumstances the bowel first be distended with air or water which greatly facilitates anastomosis.

When anastomotic procedures have been done, intake by mouth is replaced by parenteral administration of glucose and saline for the first few days. No attempt is made to aspirate the stomach unless distention occurs, in which case suction should be resorted to. Feedings are resumed slowly with small amounts of water by mouth on the fourth day, supplemented by milk after that time, the volume being gradually increased. In young infants it is suggested that breast milk be given in gradually increasing amounts following surgery so that the child is receiving normal requirement by the end of the first week. Bilious vomiting may occur during the first few days postoperatively but this does not necessarily indicate that the surgical procedure has not relieved the obstruction adequately. Vomiting and starvation, when continued for any length of time, may result in marked alteration in the blood chemistry so that, upon institution of more normal feeding postoperatively, changes may result for which the tissues are unprepared. In the case presented, nonpitting edema of the extremities and face occurred on the fourth, fifth and sixth postoperative days in the absence of any abnormal urinary findings. Vitamin deficiencies are also likely to be present in such cases. Vitamin C, being especially helpful in wound healing, can be administered easily with intravenous fluids and it is recommended that doses of from 200 mg. to 500 mg. be given daily for the first few days.

CASE REPORT

C. M., aged 28 months, was first seen October 29, 1940, at which time she had a cold and her complaints were that she had never been well, was undernourished and underdeveloped, had always had "trouble with her stomach and bowels," and constipation had always been a serious problem. In the last few months the child had grown more nervous and irritable and did not rest well at night, which caused the mother to suspect a worm infestation.

The mother, who was exceptionally intelligent, had made careful observations of all details throughout the life of the child and was able to relate the following history. The child was a first baby and had been delivered by version, at which time she weighed 5½ pounds. For several hours after delivery the child had difficulty in breathing and was cyanotic at times during the first day. It was put to breast on the first day following which, upon return to the nursery, vomiting began. It is not known if she was given water or formula following the first nursing. Vomiting continued several times daily and on the third day it was explained as being due to retained mucus in her throat. The vomitus was bile stained, sometimes dark greenish brown and sometimes light brown in color. There was no jaundice at any time. After leaving the hospital the child continued to vomit after each feeding and could not gain weight. At the age of 2½ months the weight was 6 pounds. An atropine preparation was then prescribed which gave no relief. Vomiting continued and was always forceful and projectile in type, the mother noting that the vomitus was always "shot out for some distance" rather than in the usual manner of vomiting. The child then had an attack diagnosed as possibly bronchitis or whooping cough which continued for eight weeks, during which time the vomiting was worse. At the age of 5 months some feeding could again be kept down. At 6 months the child weighed 8 pounds and there was gradually less vomiting. When the child was 3 weeks old the mother had observed a "knot" which appeared about in the midline, half way between the costal margin and umbilicus and which traveled along the course of the duodenum, moving toward the right. This came on at intervals, disappearing in the right side to recur in about the midline and start over again. A physician was consulted and thought this was "a spasm of the muscle, and congenital." The mother was advised to wean the child at 14 months as it was felt that the mother's milk was not agreeing with her. Promptly upon changing to cow's milk the vomiting became worse. The weight then was 16 pounds. Loss of weight and strength occurred and pediatric consultation revealed an anemia for which two blood transfusions were given. Lactic acid milk formula was prescribed on the basis of suspected food sensitivity. Three months later, while being given intraperitoneal fluids, visible peristalsis was seen to travel across the abdomen from left to right in the epigastrium. A roentgen study was decided upon but was dismissed when, after the administration of the intraperitoneal fluid, the vomiting stopped entirely for about one month. Some gain in weight also occurred so that at 18 months she weighed 18 pounds. Vomiting recurred and a diagnosis of congenital hypertrophic pyloric stenosis was made. The mother was told that "the child might have to be operated upon but that she was really too old to have this done now." Lactic acid milk feedings were continued but vomiting was not relieved. Various foods, and in different forms, were tried with the result that certain types were found to be tolerated reasonably well, the others being eliminated. On this program vomiting occurred at least once daily and occasionally several times daily except for attacks about every three to four weeks, at which time the child vomited everything eaten for a period of several days. During these attacks she was placed in bed and everything was withheld except water. After the attack subsided the usual routine was again resumed. There was severe pain with each attack of vomiting and a large "knot" appeared in the abdomen and much gurgling and rumbling was heard which, at times, was audible from an adjoining room. The child cried with pain and vomiting brought relief. Constipation had always been marked but the stools had always con-

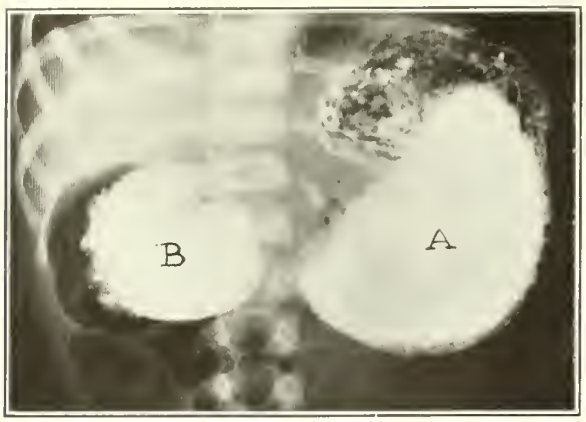


Fig. 1. A-P view showing stomach (A) and duodenum (B). Duodenum is dilated enormously and appears to end blindly. No barium could be expressed beyond this point. The widely dilated pylorus fails to retain any barium which passes freely from one side to another on slight pressure.

tained some evidence of bile, usually being a light yellowish grey. There had never been any blood in the stools or in the vomitus. Bile had always been present in the vomitus. During the last six months the mother had tried to limit the child to soft, light foods and liquids but occasionally, when no one had been looking, foods of the forbidden types had been obtained and these always resulted in an attack.

Pediatric consultation (E. J. S.) was obtained and after physical examination a tentative diagnosis was made of chronic intestinal obstruction of congenital origin, probably located in the duodenum.

Roentgen examination (figs. 1 and 2) was reported as follows: "Both lung fields are clear. There is no defect in the esophagus. There is considerable delay in gastric motility with the major portion of the barium remaining in the stomach at the five hour examination. There is no evidence of any filling defect in the stomach. The pylorus remains open which permits barium to pass freely between the stomach and duodenum. The first and second portions of the duodenum show marked dilatation with retention of considerable fluid after fasting. There is almost complete obstruction of the duodenum near the ligament of Treitz. It was impossible to express any barium past this point. This is characteristic of an old obstruction near the ligament of Treitz

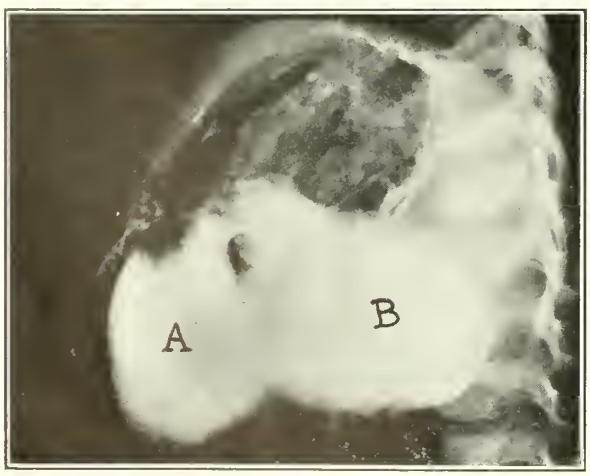


Fig. 2. Lateral view of stomach (A) and duodenum (B) with patient lying on right side. In this position the barium partially fills the pylorus and depicts more vividly the dilated duodenum.

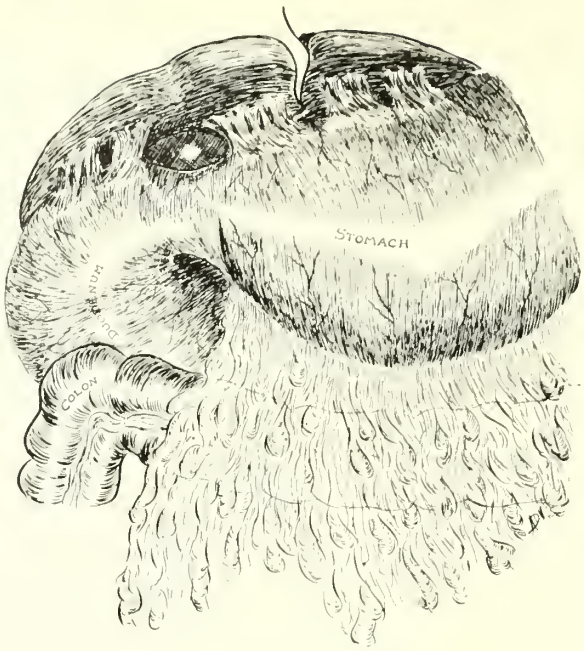


Fig. 3. Drawing illustrating appearance of abdominal viscera on opening the abdomen. Note the extreme dilatation of duodenum as compared with stomach which is also moderately dilated. The pylorus had become so thinned that on palpation it could not be distinguished from the duodenal wall. The pylorus was about two inches in diameter. Note also the downward displacement of the colon and adhesions to undersurface of liver and gallbladder which obliterated all approach to the foramen of Winslow.

which is probably due to congenital bands; however, partial obliteration (stenosis) in this area can not be ruled out."

After being allowed to recover from her cold, the

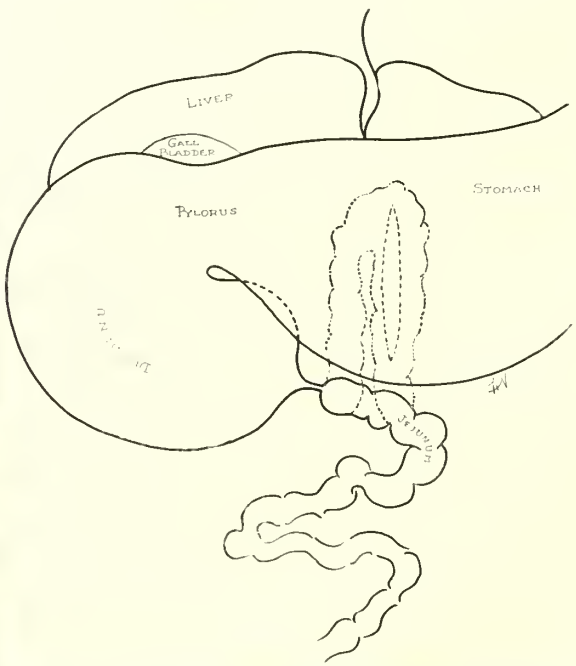


Fig. 4. Diagramatic illustration of the lesion which was located at the ligament of Treitz, immediately behind the superior mesenteric vessels. The disproportion in relative size of duodenum, pylorus and stomach is apparent. Dotted lines illustrate the anastomosis.

patient was admitted to Burge Hospital on November 5, 1940. For two days prior to operation intake was limited to water and sugar candies. Physical examination at that time revealed a poorly developed and undernourished child. The weight was 23 pounds. There was no acute pain. Examination showed the patient essentially normal except for the abdomen. Slightly above the umbilicus large waves of peristalsis (five inches in width) could be seen, starting well out in the left flank and progressing across the abdomen into the right flank. The abdomen was distended above the umbilicus. No masses were palpated. Laboratory examinations revealed: red blood cells 4,070,000; hb. 82 per cent; white blood cells 6,400; differential, basophil 1, eosinophil 1, stabs 7, segments 31, lymphocytes 57, mononuclears 3. Urinalysis showed a trace of albumin, specific gravity 1.009, an occasional granular cast, sugar 3 plus and occasional squamous epithelial cells.

Operation was performed on November 6. Preoperatively the stomach was aspirated. Upon opening the abdomen through an upper right paramedian muscle retracting incision, the abdominal cavity seemed at first to be occupied completely by an enormously dilated stomach and duodenum (fig. 3). The pyloric ring was about two inches in width and on palpation was of the same thinness as the duodenal wall. The duodenum likewise was dilated markedly and extended anteriorly to be in contact with the anterior abdominal wall. The transverse colon was distended and displaced slightly downward by the dilated duodenum on the right. The duodenum was adherent to the entire undersurfaces of the liver and gallbladder lateral to the duodenohepatic ligament and to within one inch of the anterior margin of the liver. Only a small area of the fundus of the gallbladder was visible and the approach to the foramen of Winslow was completely obliterated.

The transverse colon, stomach and omentum were exteriorized, bringing into view the retroperitoneal portion of the duodenum, the ligament of Treitz and the small bowel. The duodenum here likewise was markedly thinned and pale and extreme dilatation was noted, the diameter being approximately three inches. This dilatation receded abruptly at the ligament of Treitz (fig. 4) where the bowel passed behind the superior mesenteric vessels. These vessels appeared normal in position and course. Numerous small, soft lymph nodules were palpated in the ligament. Upon emerging from the ligament of Treitz, the first three inches of the jejunum were about one inch in diameter and slightly dark in color from the contained bile. The remainder of the small bowel was completely collapsed with an approximate diameter of one half inch and the entire small intestine could easily have been held within the palm of the hand. Examination of the area immediately behind the superior mesenteric vessels revealed ample space for the passage of normal intestine. The adhesions to the liver and gallbladder were freed and the duodenum was mobilized so that it could be palpated posteriorly. With the left index finger behind and the left thumb anterior, the region of the obstruction could be palpated easily. This portion of the duodenum, of about one inch in length, located just behind the superior mesenteric vessels, was found to be smooth, soft and pliable and without any evidence of induration or thickening. Here it appeared to be of about the width of a normal adult cystic duct. No constricting bands were found. No other anomalies of development were found.

Posterior gastro-enterostomy was performed, using the first loop of jejunum and making the stoma as wide as possible in the distal third of the stomach and on a line transverse with the long axis of the stomach.

After closure of all peritoneal openings necessitated by these procedures, the abdomen was closed in layers without drainage.

Convalescence was uneventful. All intake by mouth was stopped for three days, during which time intravenous saline with 5 per cent glucose, to which 500 mg. vitamin C was added, was given daily. On the fourth day small amounts of water were allowed at frequent intervals and this was doubled on the fifth day. On the sixth day the intake was augmented by one ounce of milk every hour. This being well tolerated, the diet was gradually increased daily until, at the time of her dismissal from the hospital on the fourteenth day, she was receiving a regular soft diet. At no time postoperatively was there any distention, nausea or vomiting. The patient always requested more food than she was allowed. On the fourth postoperative day a nonpitting edema of the hands, face and feet was noted. It was felt that this was the result of an altered blood chemistry resulting from her previous nutritional maladjustments and that it would clear up spontaneously. Urine was repeatedly normal and the edema gradually disappeared, being completely absent by the seventh day. Economic factors prevented confirmation of this belief through blood studies.

Since dismissal from the hospital the child has been eating and enjoying all types of food and it is difficult to keep her satisfied on three large meals daily.

COMMENT

Because of the extreme thinness of the third portion of the duodenum with concomitant disturbance of its vascular supply, it was felt that duodenojejunostomy, although the procedure of choice, would entail too great a risk through possible faulty anastomosis. Another factor in the decision for gastro-enterostomy was that since the obstruction had always allowed for the passage of a certain amount of food and secretions, such an anastomosis likely would not be complicated later by the necessity for complete regurgitation of all the duodenal contents through the stomach.

SUMMARY

1. Congenital obstruction of the duodenum is a rare anomaly.

2. A review of the literature suggests a change in the conception of incidence and prognosis.

3. Such obstructions are classified as to types and their mechanism discussed.

4. Symptoms of congenital duodenal obstruction are described in detail.

5. Differential diagnosis between congenital hypertrophic pyloric stenosis, intracranial lesions, enteral and parenteral infections and functional vomiting is given.

6. The importance of suspicion of all cases of persistent vomiting in newborn and young infants and the judicious use of roentgen studies is repeatedly stressed.

7. The treatment is surgical and the procedures are discussed, together with preoperative and postoperative care.

8. One case is reported.

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REPORT A MEANS OF PREVENTING SENSITIVITY TO LIVER EXTRACT

By administering the drug histaminase by mouth for two days before and on the day of injection of liver extract to patients with anemia, reactions to the injections of the extract were prevented, C. B. Taylor, M.B., and D. W. Hilger, M.D., Minneapolis, report in *The Journal of the American Medical Association* for November 29.

Although severe reactions to liver extract administered by injection into a vein or under the skin are relatively infrequent, they none the less have presented a serious problem in treating patients with anemia when they did occur.

Histaminase is a drug which presumably neutralizes the free histamine, believed to be a substance released from the tissues into the blood and taking an active part in allergic processes.

The authors' report is based on their experience with two patients with pernicious anemia who acquired severe sensitivity to parenteral (into a vein or under the skin) administration of liver extract. Definite, temporary reduction of the reactions, which involved itching, nausea and vomiting, to liver extracts followed the administration of histaminase to the two patients.

"We feel," the authors say, "that a method by which the liver extract can be administered parenterally in therapeutic [adequate treatment] doses, as was done in the cases reported, has definite advantages over the previous methods of attempting to solve the problem of acquired sensitivity to liver."

CASE REPORT

DIABETES INSIPIDUS TREATED WITH PITRESSIN TANNATE

REPORT OF CASE

LEE D. CADY, M.D.

ST. LOUIS

R. L. M., male, aged 40, engineer, had had good health until he fell from a truck and bumped the back of his head twelve years previous to the time I saw him. He had been a bit dazed but otherwise seemed unhurt. Three or four weeks later he had a burning sensation and frequent urination. The physician who examined him found his urine had "no specific gravity." He would pass as much as ten gallons of urine per day if he could get the water to drink. After a month or so he changed doctors. His condition was recognized and he was put on pituitary extract with prompt benefit. The dry pituitary powder was too irritating for him to use as a snuff.

Within the next year he had an inguinal herniotomy and a wrenched knee without any unusual complications. He had been taking 0.5 cc. standard obstetrical pituitary extract four times daily, subcutaneously, with control of the urinary output unless he became excited or nervous. During these years he at times would have violent intestinal cramps, sometimes short periods of diarrhea and even bowel incontinence, apparently due to the pituitary administration.

Table 1. *Report Without Pituitary Administration*

Hour	Intake	Output	Remarks
12:30 p.m.			Started check
3:30 p. m.	2 qts.	2 qts.	Leisure at home
6:00 p. m.	2 qts.	2 qts.	Leisure at home
8:45 p. m.	2 qts.	2 qts.	Leisure at home
11:45 p.m.	2 qts.	2 qts.	Playing cards
12:30 a. m.	1 qt.	1 qt.	Playing cards
Sub-totals	9 qts.	9 qts.	End 1st 12 Hrs.
3:00 a. m.	1 qt.	1 qt.	In bed
8:30 a. m.	2 qts.	2 qts.	Leisure at home
12:30 p. m.	2 qts.	2 qts.	Leisure at home
Sub-totals	5 qts.	5 qts.	End 2nd 12 Hrs.
4:30 p. m.	2 qts.	2 qts.	Leisure at home
7:00 p. m.	2 qts.	2 qts.	Leisure at home
10:00 p. m.	2 qts.	2 qts.	In bed
12:30 a. m.	1 qt.	1 qt.	In bed
Sub-totals	7 qts.	7 qts.	End 3rd 12 Hrs.
3:00 a. m.	1 qt.	1 qt.	In bed
7:00 a. m.	2 qts.	2 qts.	In bed
10:15 a. m.	2 qts.	2 qts.	Working
12:30 p. m.	2 qts.	2 qts.	Working
Sub-totals	7 qts.	7 qts.	End 4th 12 Hrs.

Table 2. *Report on Use of Pituitrin*

10:30 p. m.	Injected ½ cc. pituitrin*
6:15 a. m.	Effect lost
7:15 a. m.	Injected ½ cc. pituitrin
10:30 a. m.	End 1st 12 hr. period
	Intake: 1¼ pints
	Output: 1¾ pints
12:15 p. m.	Effect lost
1:00 p. m.	Injected ½ cc. pituitrin
5:30 p. m.	Effect lost
6:45 p. m.	Injected ½ cc. pituitrin
10:30 p. m.	Effect lost, injected ½ cc.
10:30 p. m.	End 2nd 12 hr. period
	Intake: 4¾ pints
	Output: 4¾ pints
6:15 a. m.	Effect lost
7:15 a. m.	Injected ½ cc. pituitrin
10:30 a. m.	End 3rd 12 hr. period
	Intake: 4½ pints
	Output: 3½ pints
12:30 p. m.	Lost effect, injected ½ cc.
5:30 p. m.	Lost effect
6:30 p. m.	Injected ½ cc. pituitrin
10:30 p. m.	Lost effect
	End 4th 12 hr. period
	Intake: 4½ pints
	Output: 4 pints

*Obsterical—5 pressor units.

Table 3. *Effect of Pitressin Tannate on Diuresis*

Pitressin Tannate* Injection	Date	Hour	With Pituitrin	Duration of Effect Hours
1. 1 cc.	12/ 2/40	10:30 a. m.	½ cc.*	25
2. 1 cc.	12/ 3/40	7:00 p. m.	½ cc.	60
3. 1 cc.	12/ 5/40	1:00 p. m.	None	69
4. 1 cc.	12/ 9/40	10:00 a. m.	½ cc.	66½
5. 1 cc.	12/11/40	8:30 p. m.	½ cc.	59½
6. 1 cc.	12/14/40	8:00 a. m.	½ cc.	71
7. 1 cc.	12/17/40	7:00 a. m.	None	Effective
		12:00 a. m.	½ cc. on 12/19/40	until 9:00 a. m. Thurs. 50
8. 1 cc.	12/19/40	7:30 p. m.	½ cc.	85½
9. 1 cc.	12/23/40	9:00 a. m.	½ cc.	72
10. 1 cc.	12/26/40	9:00 a. m.	½ cc.	76
11. 1 cc.	12/29/40	1:00 p. m.	½ cc.	53
12. 1 cc.	12/31/40	6:00 p. m.	½ cc.	49½
13. 1 cc.	1/ 2/41	7:30 p. m.	None	110½
14. 1 cc.	1/ 7/41	9:00 a. m.	½ cc.	83
15. ⅔ cc.	1/10/41	8:00 p. m.	None	49
16. 1. cc.	1/12/41	9:00 p. m.	½ cc.	112
	1/17/41	1:00 p. m.	½ cc.	6
17. 1 cc.	1/17/41	7:00 p. m.	None	85
	1/21/41	10:00 a. m.	½ cc.	6½
18. 1 cc.	1/21/41	6:30 p. m.	½ cc.	80½
19. 1 cc.	1/25/41	7:00 a. m.	None	60
20. 1 cc.	1/27/41	7:00 p. m.	None	84½
	1/30/41	12:00 p. m.	½ cc.	
21. 1 cc.	1/31/41	7:30 a. m.	None	120
22. 1 cc.	2/ 5/41	7:30 a. m.	None	120
23. 1 cc.	2/10/41	7:30 a. m.	None	107½
24. 1 cc.	2/14/41	7:00 p. m.	None	99½
25. 1 cc.	2/18/41	10:30 p. m.	None	48
26. 1 cc.	2/20/41	10:30 p. m.	None	41½
27. 1 cc.	2/22/41	7:00 p. m.	½ cc.	74½
28. 1 cc.	2/26/41	7:30 a. m.	½ cc.	72
29. 1 cc.	3/ 1/41	7:30 a. m.		
		11:30 a. m.	½ cc.	62
30. 1 cc.	3/ 3/41	9:30 p. m.	½ cc.	72
31. 1 cc.	3/ 6/41	10:30 p. m.	None	74
32. ½ cc.	3/ 9/41	2:00 p. m.	None	29½
33. 1 cc.	3/10/41	7:30 p. m.	½ cc.	65½
34. 1 cc.	3/13/4	1:00 p. m.	None	48
	3/15/41	1:00 p. m.	None	
35. 1 cc.	3/18/41	10:00 a. m.	½ cc.	72
36. 1 cc.	3/18/41	1:00 p. m.	None	65
37. 1 cc.	3/21/41	7:00 a. m.	None	50
38. 1 cc.	3/23/41	9:00 a. m.	½ cc.	105
39. 1 cc.	3/27/41	6:00 p. m.	None	43
40. 1 cc.	3/29/41	3:00 p.m.	½ cc.	64
41. 1 cc.	4/ 1/41	7:00 a. m.	None	59
42. 1 cc.	4/ 3/41	6:00 p. m.	None	90
43. 1 cc.	4/ 7/41	6:00 p. m.	None	73
44. 1 cc.	4/10/41	7:00 p. m.	None	74
45. 1 cc.	4/14/41	7:30 a. m.	None	60
46. 1 cc.	4/16/41	7:30 p. m.	None	70
47. 1 cc.	4/19/41	5:30 p. m.	None	73½
48. 1 cc.	4/22/41	7:00 p. m.	None	72
49. 1 cc.	4/25/41	7:00 p. m.	None	72
50. 1 cc.	4/28/41	7:00 p. m.	None	74½
51. 1 cc.	5/ 2/41	7:30 a. m.	None	53½
52. 1 cc.	5/ 4/41	12:00 a. m.	None	43½
53. 1 cc.	5/ 6/41	7:30 a. m.	None	96
54. 1 cc.	5/10/41	7:30 a. m.	None	86½
55. 1 cc.	5/13/41	9:30 p.m.	None	80½
56. 1 cc.	5/17/41	7:00 a. m.	None	60
57. 1 cc.	5/19/41	7:00 p. m.	None	74
58. 1 cc.	5/22/41	9:00 p. m.	½ cc.	72
59. 1 cc.	5/26/41	9:00 p.m.	None	82
60. ½ cc.	5/29/41	7:00 a. m.	None	32½
61. 1 cc.	5/30/41	2:30 p. m.	None	77
62. 1 cc.	6/ 2/41	7:30 p. m.	None	84
63. 1 cc.	6/ 6/41	7:30 a. m.	None	60
64. 1 cc.	6/ 9/41	7:30 p. m.	None	59½
65. 1 cc.	6/12/41	7:00 a. m.	None	96
66. 1 cc.	6/16/41	7:00 a. m.	None	61

*5 pressor units.

From November 23 to 25, 1940, he discontinued the pituitary administration and table 1 shows his report.

Table 2 shows the effect, as he reported, of using pituitrin in his accusomed manner.

After taking three injections of pitressin tannate in oil,* he made the following report:

"After taking four shots each day for twelve years, then to have one shot last for sixty hours is pleasing. . . . The first shot taken lasted twenty-four hours, but I believe part of the effectiveness was lost due to a running off of the bowels the first twelve hours of the period. The second shot, taken in conjunction with 0.5 cc. of pituitrin, lasted for sixty hours."

Table 3 shows the consecutive results of each injection of pitressin tannate (5 pressor units) in so far as diuresis is concerned.

He has made one additional observation which may be noteworthy.

During the previous twelve years, while taking the pituitary extract, he regarded himself as being "very strong sexually." Coitus occurred from four to six times weekly. Since being on the pitressin tannate, coitus had occurred from one to two times weekly.

On the first examination in November 1940, his blood pressure was 145/80 and pulse 78. On May 30, 1941, his blood pressure was 115/70 and pulse 76. He had lost one or two pounds. He regards himself as being in better health and well-being than before starting his recent treatment.

The obvious benefit of "depot" pitressin therapy for diabetes insipidus is the convenience of fewer injections. Five units of pressor substance in the form of pitressin tannate in oil gave this patient relief from polyuria from forty-three to 120 hours, and the average effect lasted from sixty to seventy hours whether given with 5 pressor units in the form of obstetrical pituitrin or not. In this patient, the relative superiority of pitressin tannate in oil over watery solutions (pituitrin) was at least ten times as great.

Pasteur Medical Building.

*The pitressin tannate in oil used in this clinical investigation was furnished by Parke Davis & Co., Detroit.

ANOTHER ARGUMENT FOR MAINTAINING PHYSICAL FITNESS

Another argument for maintaining physical fitness is contained in a report in *The Journal of the American Medical Association* for November 15 by Edward K. Cravener, M.D., and Donald G. MacElroy, M.D., Schenectady, N. Y., which suggests that the sedentary person in poor physical condition is more liable to injuries of the cartilage between the knee joint than the well developed person. This is based on a study of 1,700 of their own and other cases reported in medical literature.

Regarding other apparently predisposing factors the authors say:

"1. Injuries to the cartilage occur most commonly at about the twenty-ninth year of life.

"2. They are usually the result of intolerable torsion [twisting] strains. . . . Injuries of the cartilage may be either push or pull injuries and frequently are both.

"3. We believe that they occur most commonly in the obese, the under-muscled and the wide-pelvised person. These three factors may have the same basic cause.

"4. The ordinary expectancy of results shows marked improvement in 90 per cent of cases in which operation is done. With the nonoperative methods [notably rest in a cast] 55 per cent of cures are expected.

"5. Ordinarily, the younger the patient the quicker the recovery.

"6. Patients operated on before the end of the sixth week after injury often have severe effusions [seeping of fluids]. With the indecision which arises as to whether the lesion [injury] is through the vascular [full of blood vessels] zone, and hence curable by conservative means, we believe that all patients should undergo six weeks' preliminary immobilization [complete rest in a cast].

"7. Injuries which recur after this period can be cured only by removal of the damaged cartilage.

"8. Locking [of the knee], despite the common belief, occurs in only 30 per cent of cases. Pain and instability are the most common symptoms.

"9. Partial or complete failure of recovery after operation is due to many causes, chief of which is faulty diagnosis. Another important one is failure to operate before the end of the first year after trauma [injury]."

RESETTLEMENT OF FOREIGN PHYSICIANS

The National Committee for Resettlement of Foreign Physicians, David L. Edsall, M.D., Chairman, Tryon, N. C., and Tracy J. Putnam, M.D., Vice Chairman, New York, report in *The Journal of the American Medical Association* for November 29 "has succeeded in assisting and placing between twelve and fifteen hundred émigrés in internship or practice during the two and a half years of its existence; no serious complaints or maladjustments have occurred among 95 to 98 per cent of such placements."

Among other points made in the committee's report is that rural resettlement has been particularly successful in the few states still open to émigrés.

Because of increasing natural needs, especially in rural states, and special needs arising from the present national emergency, ample opportunities exist to employ the unlicensed recent émigrés.

The committee recommends that "cooperative action by all medical agencies, federal and state, together with the American Medical Association, could provide a plan to redistribute and resettle the qualified émigré physicians.

"Tests for qualification in the form of state board or national board examination should be applied to all.

"Younger émigrés (under 40) should be required to take internships before licensure.

"All licenses should stipulate that the émigré applicant shall have first papers to obtain citizenship as soon as the law permits.

"Temporary licenses with similar safeguards should be issued after successful examination, for use in selected areas through state licensing boards. Supervisory agencies of the state and the state medical societies should be available to check the work of the temporary licensees.

"Proper resettlement of the qualified émigrés and the acceptance of some for Army and Navy needs will protect native Americans against permanent loss of their practices, if called to military service. Such action will also avoid overcrowding and undue competition in many cities and will contribute to the medical care of the nation as a whole."

DOGS AND TULAREMIA

Evidence that dogs may be susceptible to infection with tularemia (rabbit fever) is presented in *The Journal of the American Medical Association* for December 13 by L. F. Ey and R. E. Daniels, Columbus, Ohio, who report an instance in which they found the disease occurring in three dogs and their master. The dogs recovered, whereas the owner died. Heretofore it had been considered by many that dogs possessed a natural immunity to the disease.

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JANUARY, 1942

EDITORIALS

A CALL TO THE MEDICAL PROFESSION

The nation is at war. The Congress has passed an amendment to the Selective Service Act which will call for registration of every man up to the age of 65 and which will place all men under 45 years of age subject to service at the order of the Selective Service boards.

The Procurement and Assignment Service for Physicians, Dentists and Veterinarians was established by order of the President on October 30. Thus the medical profession itself aids in determining proper distribution of the medical profession in supplying the needs of the armed forces and maintaining medical service to civilian communities, public health agencies, industrial plants and other important needs.

At a meeting of the Procurement and Assignment Service held in Chicago at the headquarters of the American Medical Association of December 18, jointly with the Committees on Medical Preparedness of the American Medical Association, the American Dental Association and the American Veterinary Medical Association, plans were drawn for making immediately available to the United States Army and Navy Medical Corps the names of physicians who wish to be enrolled promptly in the service of the government in this emergency.

On the opposite page* is published a blank by which every physician may at once place his name with the Procurement and Assignment Service as one who is ready to serve the nation as the need arises. If you wish to make yourself available for classification, fill out this blank and send it at once to Dr. Sam F. Seeley, Executive Director of the Procurement and Assignment Service. When these blanks are received, they will be classified and checked with the information available in the national roster of physicians at the headquarters of the American Medical Association.

For two thousand and nine counties in the United States, lists have been prepared indicating physicians who are engaged in necessary civilian projects, public health services or educational activities from which they cannot be spared. Shortly the rest of the counties will have such lists available.

In each of the corps areas covering the United States a committee is being established, including representatives of medical, hospital, educational, dental and veterinary activities. In the individual states, committees of medical, dental and veterinarian professions are being established through which the corps area committees will exercise their functions. In each county also local committees will provide accurate information regarding the status of each member of the profession concerned.

The raising of the Selective Service age from 28 to 45 will place a great number of additional physicians in the category of those on whom the nation may call as their services are needed. Estimates indicate that some sixty thousand physicians thus become available for service and that forty-two thousand dentists under the age of 45 also become subject to call. By enrolling with the Procurement and Assignment Service immediately, utilizing the blank on the opposite page,* all physicians, but particularly those under 45 years of age, insure to every extent possible assignment to the type of service for which they are best fitted. They avoid thus also the possibility of unclassified service with the United States Army during the period that may be necessary following selection by the Selective Service before the commission can be secured. A physician called by the Selective Service who has not enrolled or who is not on a reserve list obviously serves without a commission during the time that necessarily elapses before a commission is secured. In future issues of *The Journal* announcements will be made regularly of the numbers of those who enroll and of the extent to which the immediate needs of the Army, Navy and other government agencies are being supplied.

SPECIFIC TREATMENT OF HAY FEVER

In this part of the United States there are three hay fever seasons. (1) The first is due to the air-borne pollen of the trees, extending from about March 1 to June 1. The pollen of elm, maple and oak are the more abundant and are responsible for the symptoms in most patients. However, the air-borne pollen of any tree has the potentiality of inducing symptoms in susceptible persons. In most instances the symptoms are mild and of short duration. Frequently they pass for an ordinary head cold. (2) The next hay fever season is due to the air-borne pollen of the grasses and extends from about the first week in May to the middle of July. The pollen of timothy, orchard grass and June grass are the most frequent causative agents in this latitude, but other grasses may be the causative agents in regions where they are the dominant growth. The symptoms are more intense and of longer dura-

Reprinted from *The Journal of the American Medical Association*, December 27, 1941.
*See page 25.

tion than those due to the pollen of trees. (3) The third type of hay fever is due in most instances to the pollen of ragweed and extends from about the middle of August to the first killing frost. The pollen of cocklebur, false ragweed, marshelder and burweed marshelder are also in the air during this time and will induce symptoms in some individuals.

In order to build up tolerance for the causative pollen, patients should be treated with the pollen to which they are actually exposed, to which they are the most sensitive and whose period of pollination corresponds to the clinical history. After one has determined the offending pollen, treatment by means of subcutaneous injections, beginning with a very small dose and gradually increasing the dose until a very large one is given, has been the most successful method of raising the resistance to that point at which a hay fever sufferer enjoys comparative freedom from symptoms. The best results are obtained by preseasonal or preventive treatment, the object being to raise the resistance of the patient to the highest possible point just as pollination commences. In the ordinary case, it requires between fifteen and twenty injections to attain the protective level. The better clinical results follow when these injections are given at a regularly spaced interval of five to seven days; therefore it is necessary to begin them three, and in the very sensitive individual, four or more months before the onset of the hay fever symptoms.

A shorter interval of injections may be used when patients present themselves too late for treatment with the five to seven day interval. The guiding principle in these patients is that the highest tolerated dose (which is not necessarily the strongest possible dose) be given just before the onset of pollination. Because it requires from two to seven days to eliminate pollen given by parenteral injection, it is theoretically unsafe to give hyposensitization injections oftener than every three days. Practically, however, it seems that the weaker dilutions can be given oftener so that in such instances the weaker dilutions can be given every other day, perhaps even daily, while the stronger ones can be given two times a week equally spaced.

For those patients who present themselves for treatment during the season, coseasonal or phylactic treatment appears to be helpful in some instances. At the present time, there is no general method of treatment but the consensus favors the frequently repeated small dose of the weakest dilution given either intracutaneously or subcutaneously. When given intracutaneously the resulting wheal should be no larger than the thumb nail.

Injections should not be given, irrespective of the interval, when either itching, heat, redness or swelling are still present from the last injection, and the dose should not be increased if redness, heat, swelling or itching, one or all, persist at the site of injection for twenty-four hours. In such an event, the dose producing the reaction is repeated and sometimes a second repetition is necessary; if one or all of these symptoms persist longer than twenty-four hours, the next dose should be reduced to the previous dose which induced no such reaction. Constitutional or systemic reactions (urticaria, hay fever or bronchial asthma) are more likely to follow immediate large local reactions but will also occur when the significance of mild local reactions that persist longer than twenty-four hours goes unheeded.

If a satisfactory clinical result has been attained by prophylactic hyposensitization injections, then the tolerance in some cases can be maintained by perennial injections. Under this plan, one continues with the dose given during the hay fever season and gradually lengthens the interval of injection to two weeks. About one month before the onset of the hay fever season the interval can be decreased to one week, thus affording the opportunity of increasing the dosage, if that is thought to be necessary. During subsequent years the interval of injection can be lengthened to three and finally four weeks. However, the likelihood of systemic reactions increases as the interval of injection exceeds two weeks so that it is safest to continue with the two week interval throughout the period of perennial treatment.

After several years, variously reported from three to five sequential years, of prophylactic hyposensitization injections or of perennial treatment for the same period, a definite number of patients will have no further hay fever.

PHYSICIANS ARE READY TO MEET ANY DEMANDS ON THEM

The attitude of the medical profession in the emergency of war was well expressed in an editorial in the *Journal of the American Medical Association* of December 13, "The Nation at War." In the same issue was published "A Call to Service" by Dr. Frank H. Lahey, Boston, President of the American Medical Association, and statements by James C. Magee, Surgeon General of the Army; Ross T. McIntire, Surgeon General of the Navy, and Paul V. McNutt, Director of the Office of Defense, Health and Welfare Services, expressing their confidence in the ability of the medical profession to meet the demands made on it by the war.

In its editorial, "The Nation at War," *The Journal* said:

"On December 7 the Japanese attacked the United States. On December 8 the President declared a state of war between Japan and the United States; both the Congress and the Senate of the United States adopted resolutions supporting the action of the President. The mustering of the forces of the United States to meet this attack and to carry on warfare to absolute victory places an immediate and tremendous responsibility on the medical profession. By the time this editorial appears, the Selective Service will, no doubt, have intensified its activities to call an additional half million, if not

a million, men. For every thousand men called into service, at least six physicians are required.

"Fortunately the medical profession has been alert. Since June 1940 the medical profession has been intensively engaged in standardization of military medical procedures, encouragement and promotion of scientific military medical research and enrollment of medical personnel. Already more than twenty-five thousand physicians have given of their services to the Selective Service. Already more than ten thousand physicians are engaged in military medical service. Additional thousands are associated with the United States Army and Navy Medical Corps, the United States Public Health Service, speeded industry and many other military and quasimilitary activities. Moreover, the Office of Civilian Defense has made the medical profession aware of requirements for its services to the civilian population in times of emergency.

"Whenever the medical profession has been called on by our government it has responded wholeheartedly and enthusiastically to the Nation's call. Never has there been raised the slightest doubt of the patriotism of the medical profession. Now comes a new opportunity to respond.

"The development of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians places on the medical profession the responsibility for supplying the medical personnel necessary to all the services that have been mentioned. The utilization of the roster in the headquarters of the American Medical Association gives opportunity to supply all the needed officers and, at the same time, to protect the requirements of medical education and the care of the civilian population.

"On December 18 the Committee on Medical Preparedness of the American Medical Association will meet in Chicago together with similar committees representing the dental and veterinarian professions to outline the details of the method by which physicians will be called. The state and county committees on medical preparedness will be utilized in developing complete information regarding physicians available for various types of service. Shortly also *The Journal* will publish a blank on which every physician willing to serve may indicate the special service for which he is immediately available.

"The organization has been made ready; the lines of communication are drawn; confusion need not prevail. When the call comes, physicians who are to serve with the military branches will enroll directly through the corps area commander in each corps area and all of the necessary steps will have been taken to facilitate such enrollment. The President of the United States will find the physicians of this nation ready and willing to meet any demands which the nation may place on them."

In Dr. Lahey's call to service he said:

"The establishment by the government of a Procurement and Assignment Agency properly places the responsibility for obtaining medical personnel in the hands of the medical profession. The success of this agency depends entirely on a few basic features: the complete cooperation of medicine in what even the most doubting must now admit is a truly national emergency; an unqualified willingness to serve the country however, wherever and whenever required; and a firm purpose to establish the fact that medicine intends to maintain its place in the forefront as it always has when a patriotic example is of such significance."

Departing for the first time from its custom of not publishing articles on its cover page, *The Journal* in its December 13 issue presented on its title page statements by General Magee, Mr. McNutt and Admiral McIntire, addressed "To the Medical Profession of the United States."

General Magee said: "The present very cooperative and effective relationship between the Army Medical Department and those great bodies representative of the civil medical profession give assurance that during the present emergency medico-military affairs will be administered with the greatest possible degree of efficiency to the Army and to the civil population of our country."

Mr. McNutt said: "The mobilization and utilization of the medical profession has been placed in the hands of the profession itself through the establishment of the Procurement and Assignment Service for Physicians, Dentists, and Veterinarians. I am sure we may rely as always in the past, on the patriotism of the American medical profession."

Admiral McIntire said: "The Medical Department of the Navy expresses its deep appreciation to the medical profession of our country. Now that war is actually upon us, the Navy will need more medical officers. It has no fear regarding its needs being met; the past has shown whole-hearted cooperation. This war must come to a successful conclusion. I am convinced that the medical profession will do its part to bring that about."

NEWS NOTES

Dr. Arthur E. Strauss, St. Louis, presented a paper on "The Heart and Tuberculosis" at a meeting of the Trudeau Club of St. Louis on December 4.

Dr. R. H. Runde, superintendent of the Missouri State Sanatorium at Mount Vernon since 1938, assumed duties as tuberculosis controller of Peoria County, Illinois, on December 1.

"White Battalions," a sound motion picture produced by the American College of Surgeons, had its premier showing at the St. Louis Medical Society, St. Louis, on November 26. The showing was sponsored by the St. Louis Medical Society, Group Hospital Service and the St. Louis Hospital Council.

Dr. Ira H. Lockwood, Kansas City, has been appointed a member of the State Board of Health. Dr. Lockwood succeeds Dr. H. B. Goodrich, Hannibal.

Dr. Robert Elman, St. Louis, presented one of the Max Ballin Memorial Lectures in Detroit on November 26. These lectures are sponsored each year by the North End Clinics, Detroit.

The Hodgen Lecture for 1942 will be presented by Dr. Edwin H. Lehman, Charlottesville, Virginia, at the St. Louis Medical Society on January 13. His subject will be "The Use of Heparin." Dr. Lehman, formerly of St. Louis, is professor of surgery at the University of Virginia Medical School.

Dr. James Stewart, Jefferson City, State Health Commissioner, and Dr. E. G. McGavran, Clayton, St. Louis County Health Commissioner, were the guest speakers at the 35th annual luncheon meeting of the Tuberculosis and Health Society of St. Louis on December 1. They discussed "State and County Health Work in the Present Emergency."

Dr. Neil S. Moore, St. Louis, has been appointed a member of the council of the Southern Medical Association from Missouri for a regular council term of five years, the appointment having been announced recently by the president, Dr. M. Pinson Neal, Columbia. Dr. Moore succeeds Dr. Alphonse McMahon, St. Louis, who was not eligible for reappointment, having served the constitutional limit. Dr. Joseph C. Peden, St. Louis, was elected vice president of the Association at its St. Louis session.

"Doctors at Work," the dramatized radio program broadcast by the American Medical Association and the National Broadcasting Company, started its second season on December 6, being broadcast from 4:30 to 5:00 p. m. Central Standard Time. The program is broadcast by more than seventy-five stations affiliated with the Red Network of the National Broadcasting Company and will be heard from coast to coast. The serialized story broadcast last year dealt with the experiences of a fictitious but typical American boy choosing medicine for his vocation and proceeding to acquire the necessary education and hospital training for the private practice of medicine. Interwoven with the personal story of the young doctor and his fiancee was the romance of modern medicine and how it benefits the doctor's patients. The new series of broadcasts resumed where last year's story left off, with the marriage of the young doctor and the subsequent life of a young doctor and his wife in time of national emergency in a typical, medium-sized American city. The program is produced under the supervision of the Bureau of Health Education of the American Medical Association.

The annual pilgrimage of the St. Louis Medical Society to the grave of William Beaumont was made on November 11. Dr. Arno B. Luckhardt, Chicago, professor of physiology in the University of Chicago, spoke on "Dr. William Beaumont and the Medical Epic of the Northwest Territory." The ceremony was opened by the Senior Glee Club of the Beaumont High School, followed by remarks by Dr. Robert E. Schlueter, St. Louis. Wreaths were placed on the grave by Dr. James R. Bloss, Huntington, West Virginia, vice president of the Southern Medical Association; Dr. H. H. Shoulders, Nashville, Tennessee, Speaker of the House of Delegates of the American Medical Association; Dr. J. C. Peden, St. Louis, president of the St. Louis Medical Society; Dr. R. B. Denny, Creve Coeur, President of the Missouri State Medical Association. Dr. Luckhardt's address followed the placing of the wreaths. Dr. Solon Cameron, St. Louis, acted as master of ceremonies.

The fourth Annual Congress on Industrial Health, sponsored by the American Medical Association, will be held January 12 and 13 at the Palmer House, Chicago. The meetings are open to physicians and others interested in industrial health. There is no registration fee. Among subjects to be discussed are the problems of maintenance of health in industry, undergraduate and postgraduate industrial medical teaching, plans for training and placement need integration with program of assignment of medical personnel in industry, conservation of man power in industry, occupational dermatoses, dependable appraisal of vision in industry, industrial medicine and traumatic surgery and medical service to the small industry. There will be special field trips to industrial medical departments for physicians interested in details of practical administration.

DEATHS

Swaney, Addison G., M.D., Lee's Summit, graduate of University Medical College of Kansas City, 1906; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 60; died June 3.

Love, William Spencer, M.D., Charleston, graduate of the Vanderbilt University School of Medicine, 1908; member and former president and secretary of the Mississippi County Medical Society; Fellow of the American Medical Association; aged 58; died July 17.

Pitt, William Franklin, M.D., Hayti, graduate of the St. Louis College of Physicians and Surgeons, 1923; member and former president of the Pemiscot County Medical Society; aged 49; died July 20.

Cook, Emmett F., M.D., St. Joseph, graduate of the National University of Arts and Sciences Medical Department, St. Louis, 1897; honor member and former president of the Buchanan County Medical Society; Affiliate Fellow of the American Medical Association; aged 68; died July 22.

Davis, Wheeler, M.D., Kennett, graduate of the Beaumont Hospital Medical School, 1894; member of the Dunklin County Medical Society; aged 72; died July 24.

Jones, Austin Byron, M.D., Kansas City, graduate of the St. Louis University School of Medicine, 1915; member of the Jackson County Medical Society; member American Board of Internal Medicine; Fellow of the American Medical Association; aged 50; died September 4.

Kleine, Hans Louis, M.D., St. Louis, graduate of Washington University School of Medicine, 1929; member of the St. Louis Medical Society; member of the American Board of Obstetrics and Gynecology; Fellow of the American Medical Association; aged 35; died September 21.

Staley, Forrest Henry, M.D., St. Louis, graduate of Washington University School of Medicine, 1918; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 76; died September 21.

McElvain, Ulysses Grant, M.D., Kansas City, graduate of the National University of Arts and Sciences Medical Department, St. Louis, 1911; honor member of the Jackson County Medical Society; aged 71; died September 24.

Parker, Ernest Robert, M.D., Kansas City, graduate of the Kansas Medical College, Medical Department of Washburn College, Topeka, Kansas, 1913; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 76; died September 24.

MISCELLANY

PROCUREMENT AND ASSIGNMENT SERVICE

The following blank appears in *The Journal of the American Medical Association,* December 27, in connection with the editorial "A Call to the Medical Profession" which is reprinted on page 21.

Enrollment Form for Procurement and Assignment Service for Physicians

Dr. Sam F. Seeley, Executive Officer
Procurement and Assignment Service
New Social Security Building
4th and C Streets S. W.
Washington, D. C.

Dear Doctor Seeley:

Please enroll my name as a physician ready to give service in the Army or Navy of the United States when needed in the current emergency. I will apply to the Corps Area commander in my area when notified by your office of the desirability of such application.

Signed

1. Give your name in full, including your full middle name:
2. The date of your birth:
3. The place of your birth:
4. Are you married or single?
5. Have you any children? If so, how many?
6. Do you believe yourself to be physically fit and able to meet the physical standards for the Army and Navy Medical Corps?
7. Have you filled out previously the questionnaire sent to all physicians by the American Medical Association?
8. When and where were you graduated in medicine?
9. In what state are you licensed to practice?
10. Do you now hold any position which might be considered essential to the maintenance of the civilian medical needs of your community? If so, state these appointments:
11. Have you previously applied for entry into the Army or Naval Medical Service? If so, state when, where and with what result (if rejected, state why).

Signature

Address

Date

BOOKS FOR LEISURE MOMENTS

DISEASE—HEALTH—PHYSICIANS

Henry E. Sigerist, the distinguished Johns Hopkins Professor of the History of Medicine, despite his known Communistic sympathies, was invited by the trustees of Yale University to deliver the sixteenth series of Terry Lectures. The choice was a wise one for the purpose of this endowed lectureship is "the assimilation and interpretation of that which has been discovered and its appreciation to human welfare . . . to stimulate intelligent effort for the improvement of human conditions and the advancement of the race . . . that mankind may be helped to attain its highest possible welfare and happiness."

Under the general title "Medicine and Human Welfare" (Yale University Press, New Haven) Sigerist's scholarly penetration is encompassed under the three chapter headings: "Disease," "Health," "The Physician." Clarity of expression is the outstanding characteristic of this sweeping examination of the role of medicine and the medicine man (sorcerer, priest or physician) in human well-being.

The second chapter introduces a relatively new concept: health as a positive attribute opposed to disease, a negative quality which implies the search for health. In the Hellenistic empire the enslavement of most of the people permitted the aristocrat time and opportunity to seek out the blooming physique immortalized in the nude statuary of the Fifth Century B. C. It may be that the draped figures of intervening eras are but the reflection of a general disinterest in health as a positive attribute. Sigerist urges a reawakening, the redevelopment of this positive quality of good living. He insists that it may be achieved through wiser educational policies for youth, through education designed for adults, through the adoption of a more modern attitude by the thousands of splendid physicians who constitute a potential nucleus for such a movement.

Sigerist's thought-provoking analysis provides pabulum for many an evening's discussion by any physicians who are at all concerned over the philosophic and social implications of his profession.

B. Y. G.

EQUINE ENCEPHALITIS IN KANSAS

Evidence that the virus of western equine encephalitis (inflammation of the tissues of the brain) causes disease in human beings in Kansas is reported in *The Journal of the American Medical Association* for December 6 by James A. Wheeler, M.D., Newton, Kansas.

For his investigation he obtained specimens of blood from reported cases of encephalitis occurring in man over the state. The final results showed that 50 per cent of the patients tested showed evidence of protection or antibodies against the western equine virus.

The isolation of the western equine and St. Louis encephalitis viruses from mosquitoes, the author says, suggests the mosquito as a vector or carrier of the virus. This vector theory, he points out, is further supported by the fact that "in Kansas the incidence of poliomyelitis [infantile paralysis], encephalitis and equine encephalitis ceases abruptly with the fall frosts."

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Nodaway-Atchison-Gentry-Worth Counties Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, December 1. The president, Dr. Samuel E. Simpson, Stanberry, presided.

Members present were Drs. Henry C. Bauman, Fairfax; Claude D. Haskell, Charles H. Flynn and Clifton M. Waugh, Tarkio; Emmett B. Settle, Rock Port; Charles T. Bell, J. M. Boyles, B. F. Byland, Carlos E. Cossins, Hiram Day, Loren E. Egley and W. M. Wallis, Jr., Maryville; Joseph C. Manning, Skidmore; Charles D. Humberd, Barnard; Eugene Crowson, Pickering; Charles W. Kirk, Hopkins; Samuel E. Simpson, Stanberry; Pren J. Ross, Grant City. Guests present were Drs. W. Logan Wood, Bolckow; Richard G. Helman, Kansas City; J. F. Aldrich and B. S. Barnes, Shenandoah, Iowa; Norman Johnson, Clarinda, Iowa; O. L. Fullerton, Redding, Iowa; W. H. Cash and H. W. Anderson, Lenox, Iowa; Ed. Miller and Jesse Miller, Maryville.

Dr. E. B. Settle, Rock Port, chairman of the program committee, announced that the scientific portion of the program for the meeting of January 5 would be presented by speakers from the Department of Pathology of the University of Nebraska Medical School, Omaha, and the staff of the Nebraska Methodist Episcopal Hospital, Omaha, as a clinical pathologic conference. Arrangements are to be made to present reports, ambulatory patients, case histories, wet specimens and lantern slides of microphotographs in a diagnostic "competition."

Dr. Richard G. Helman, Kansas City, gave an able and timely paper on "Eclampsia." He gave particular attention to those measures of prenatal care which provide for the earliest recognition of the preeclamptic toxemias and to their treatment in both the anticipatory and convulsive stages. He brought valuable and practical details from his wide experience. Dr. Helman's discourse was discussed by Drs. Charles F. Flynn, Clifton M. Waugh and Claude D. Haskell, Tarkio; Loren E. Egley and Charles T. Bell, Maryville; Eugene Crowson, Pickering; J. F. Aldrich, Shenandoah; W. H. Cash, Lenox.

The following officers for 1942 were elected: President, Dr. Charles T. Bell, Maryville; vice president, Dr. Pren J. Ross, Grant City; secretary-treasurer, Dr. Charles D. Humberd, Barnard; delegates, Dr. Henry C. Bauman, Fairfax, Atchison County; Dr. Charles D. Humberd, Barnard, Nodaway County; Dr. Samuel E. Simpson, Stanberry, Gentry County; Dr. Pren J. Ross, Grant City, Worth County.

Charles D. Humberd, M.D., Secretary.

SECOND COUNCILOR DISTRICT

H. B. GOODRICH, HANNIBAL, COUNCILOR

The Second Council District met in Hannibal at the Mark Twain Hotel, December 4, for a clinic session sponsored by the Committee on Postgraduate Course of the Missouri State Medical Association.

The following program was presented:

10:30 a. m. Clinic on Pyelitis and Kidney Infections. Presented by Dr. D. K. Rose, St. Louis.

2:00 p. m. Clinic on Leukemia and Other Blood Diseases. Presented by Dr. Carl V. Moore, St. Louis.

3:15 p. m. Clinic on Valvular Heart Disease. Presented by Dr. Drew Luten, St. Louis.

4:30 p. m. Clinic on Pneumonia. Presented by Dr. Lawrence D. Thompson and Dr. J. C. Edwards, St. Louis.

6:30 p. m. Dinner at the Mark Twain Hotel. Addresses by Dr. R. B. Denny, Creve Coeur, President of the Missouri State Medical Association; Dr. George Hornback, Hannibal, President of the Marion-Ralls County Medical Society, and Dr. H. B. Goodrich, Hannibal, Councilor of the Second District.

H. B. Goodrich, M.D., Councilor.

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society held a get-together dinner meeting in Moberly, December 9, at the Merchants Hotel, to which the wives of members were invited.

Motion pictures of a portion of Canada and Old Mexico were shown.

Following a short business session the following officers were elected: President, Dr. P. V. Dreyer, Huntsville; vice president, Dr. R. A. Woods, Clark; secretary-treasurer, Dr. F. L. McCormick, Moberly; delegate, Dr. M. E Leusley, Moberly; alternate, Dr. F. L. McCormick, Moberly; censor for three years, Dr. M. C. McMurry, Paris; censors for one year, Drs. P. V. Dreyer, Huntsville, and F. A. Barnett, Paris.

F. L. McCORMICK, M. D., Secretary.

SIXTH COUNCILOR DISTRICT

A. J. CAMPBELL, SEDALIA, COUNCILOR

The Sixth Councilor District held a clinic session, sponsored by the Committee on Postgraduate Course of the Association, at the State Hospital at Nevada, on November 21.

The following program was presented:

2:30 p. m. Clinic on Heart Disease. Presented by Dr. Julius Jensen, St. Louis.

3:30 p. m. Clinic on Mental Health. Presented by Drs. B. Landis Elliott and Edward T. Gibson, Kansas City.

4:30 p. m. Clinic on Cancer. Presented by Dr. E. Kip Robinson, Kansas City.

6:00 p. m. Dinner at the State Hospital. Addresses by Dr. H. L. Kerr, Crane, President-Elect of the Association, and Lt. Col. W. L. Gist, Medical Corps, State Medical Adviser, Selective Service System.

A. J. CAMPBELL, M.D., Councilor.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the St. Francois County Courthouse, Farmington, November 28, at 7:30 p. m.

The president, Dr. Van W. Taylor, Bonne Terre, called the meeting to order and asked Dr. N. W. Hawkins, Farmington, to introduce the speaker of the evening, Dr. Louis J. Birsner, St. Louis, who gave an interesting discussion of "Neck Infections," particularly stressing the anatomy as to the etiology of deep infection of the fascial planes. The talk was made more emphatic by stressing vital points with studies of actual case histories. Lantern slides were employed to stress the anatomic landmarks of the neck. There was a prolonged general discussion of the subject.

Members present were Drs. C. H. Appleberry, Flat River; Dailey Appleberry, Rivermines; Reuben Appleberry, N. W. Hawkins, Emmett F. Hoctor, Ralph Kuhlman, F. R. Crouch, C. C. Ault, Farmington; M. B. Barber, H. W. Barron, E. E. Higdon, S. C. Slaughter, Fredericktown; Ben M. Bull, Ironton; H. H. Cline, Piedmont; Van W. Taylor, Bonne Terre; J. L. Thurman, Potosi; Arnold Traubitz, Leadwood, and J. P. Yeargain, Irondale.

C. C. AULT, M.D., Secretary.

Scott County Medical Society

The Scott County Medical Society met at the Public Library, Sikeston, November 19. Those present were Drs. E. J. Nienstedt, E. A. Belden, H. B. Throgmorton, A. D. Martin and M. G. Anderson, Sikeston, and W. O. Finney, Chaffee.

Notice regarding registration of physicians according to the new law was read and discussed.

The regional meeting of the State Board of Health personnel to be held at Sikeston on December 12 was discussed. The Society was invited to attend by Dr. E. A. Belden, Sikeston.

A postgraduate clinic session of the Tenth Councilor District at Sikeston in January was discussed and the following local committee was appointed: Drs. A. D. Martin and H. B. Throgmorton, Sikeston.

W. O. FINNEY, M.D., Secretary.

BOOK REVIEWS

NEW AND NONOFFICIAL REMEDIES, 1941. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1941. Chicago: American Medical Association.

"New and Nonofficial Remedies" describes the medicinal preparations found acceptable by the Council on Pharmacy and Chemistry. Each year descriptions of products accepted during the foregoing year are added and those taken off the market or found no longer worthy of continued acceptance are deleted. This year's volume is the largest book of the more than thirty volumes that have been issued.

New additions include the new sulfanilamide derivative, sulfathiazole; sulfapyridine sodium; antipneumococcic rabbit serum of types I, II, III, V, VII and VIII; human convalescent measules serum and human convalescent scarlet fever serum; staphylococcus antitoxin; human convalescent measles serum and human conchorionic gonadotropin (follutein); shark liver oil; ampules of camphor; digilanic, and magnesium trisilicate.

The chapter on "Serums and Vaccines" is now prefaced by a helpful index, an innovation in N. N. R. The chapter, "Vitamins and Vitamin Preparations for Therapeutic and Prophylactic Use" has been revised and includes the systematic use of graphic chemical formulas. It is understood that this practice will be extended to other parts of the book in future editions. Many minor revisions in other parts of the book have been made in the interest of greater clarity and in the effort to keep the book thoroughly up-to-date.

COUNCIL ON PHARMACY AND CHEMISTRY of the American Medical Association for 1940. With the comments that have appeared in THE JOURNAL. Chicago: American Medical Association. 1941.

This volume contains not only all of the published reports of the Council for the preceding year but also reports on products which were not deemed important enough to be published in THE JOURNAL. Council reports may be classified in general as those of omission or rejection, preliminary reports and status reports on drugs or on various therapeutic and pharmacologic problems. Representatives of all classes appear in this volume.

There are a number of interesting reports in the nonacceptable category. There are a number of noteworthy preliminary reports and nomenclature reports. All of the so-called status reports are noteworthy for one reason or another. There is an excellent report on organic mercurial compounds as bactericidal agents. Another valuable report is that on the promiscuous use of the barbiturates. This is a continuation of a previous study of the use of barbiturates in suicide. The present study is an analysis of hospital data.

One cannot even glance through a volume such as this without reflection on the great value of the Council on Pharmacy and Chemistry's work which so richly deserves the support of all who are interested either directly or indirectly in the progress of medicine.

INFANTILE PARALYSIS. Anterior Poliomyelitis. By Philip Lewin, M.D., F.A.C.S., Associate Professor of Bone and Joint Surgery, Northwestern University Medical School; Professor of Orthopedic Surgery, Cook County Graduate School of Medicine, etc. Illustrated by Harold Laufman, M.D., Philadelphia and London: W. B. Saunders Company. 1941. Price $6.00.

This book of 372 pages is not a duplication of any other volume that has come to the reviewer's attention. It brings the known facts about the disease up to date. It is lamentable that so little is known about the etiology, epidemiology and immunology of the disease, but the fact that all these things cannot be set forth with definition and precision is no reason for not writing down what is known.

The author approaches the subject in classical manner. He leads off in the introduction with "Backgrounds in Antiquity." He gives due credit to each of the early writers. Jacobson Heine, in 1840, published the first consistent monograph on the disease. The author accredits Medin of Stockholm, in 1887, as being the first to describe the affection as one of the central nervous system. It has been the reviewer's impression that credit for this research belonged to Charcot in a treatise published in 1863 in which he described atrophic changes in the anterior horn cells of the spinal cord and definitely associated these pathologic tissue changes with the atrophy of the voluntary muscles.

The high spots in the various researches are covered briefly including the work of Flexner and Noguchi, Rosenow, and Draper and their associates. Collaboration with the United States Public Health Service was had with regard to the epidemiology and with Dr. Paul De Kruif concerning the virus phase of the disease.

He brings out the fact that the work of Armstrong has added a second experimental animal to which the disease can be transmitted, the cotton-field rat. Before the work of Armstrong the monkey was used in all animal experimentation. Armstrong used the Lansing strain of the virus only on rats. The portals of entry and exist are discussed. The nasopharynx has usually been regarded as the point of entrance but it seems that the gastrointestinal tract is strongly under suspicion. Lefine recorded isolation of the virus from the feces of the daughter of a man who had died of poliomyelitis 41, 73 and 123 days after she had had a slight gastroenteritis and fever. This suggests a new angle on carriers. Immunity and resistance are discussed. As yet there is no standardized method of artificially establishing immunity. Symptomatology is dealt with at length and this is very important as early diagnosis is essential to successful treatment. Eight types are listed with rather widely varying symptoms. The chapter on diagnosis is excellent as is the detailed consideration of muscles and tendons. Treatment both medical and surgical are taken up in detail, insisting that surgical treatment begin early even before paralysis has appeared, supporting joints of extremities in neutral position. Much space is given to physical therapy muscle training and the optimum use of braces. The balance of the volume discusses indications for and the technic of corrective surgical procedures.

I consider this to be a volume of definite value to the profession on a very timely subject. Inquiring into things not fully understood is the path of advancement and betterment of humankind. The reason for the educational attainments of Ancient Greeks was briefly set forth by the Apostle Paul, when he visited Athens, in the twenty-first verse of the seventeenth chapter of the Acts of the Apostles: "For all the Athenians and strangers that were there, spent their time in nothing else, but either to tell or to hear some new thing."

J. R. E.

Foreign Bodies Left in the Abdomen. The Surgical Problems. Cases, Treatment, Prevention. The Legal Problems, Cases, Decisions, Responsibilities. By Harry Sturgeon Crossen, M.D., School of Medicine, Washington University, and David Frederic Crossen, LL.B., School of Law, Washington University, St. Louis, Missouri. With 212 Illustrations, including four color plates. St. Louis: The C. V. Mosby Company. 1940. Price $10.00.

This volume of 700 pages contains much more information than would be expected from the title. Of course, the main interest is centered on the foreign bodies left unintentionally in the abdomen. All phases of the subject are discussed adequately and the list of reported cases is complete. This book can be read with interest and profit by everyone. To the reviewer the malpractice cases are depressing. When one reads the outcome of some of these cases one is not surprised that the days of the surgeon are few and full of trouble.

There are some bright spots in the medicolegal reports. Not all of the cases were decided against the doctors. Also, there are cases such as the one in which a needle was broken and part of it was left in the uterine wall. Some months afterward the needle found its way into the vagina and was obtained by the patient. She immediately took it to the physician and again expressed her thanks and appreciation for the operation.

In my opinion, the leaving of foreign bodies in the abdomen is becoming rarer. This book will help to improve the ways to prevent such accidents. Also the roentgen ray will help the surgeon when he suspects that he might have left a sponge or instrument.

J. G. S.

Synopsis of the Preparation and Aftercare of Surgical Patients. By Hugh C. Ilgenfritz, A.B., M.D., Instructor in Surgery, Louisiana State University School of Medicine, New Orleans, etc., and Rawley M. Penick, Jr., Ph.B., M.D., F.A.C.S., Professor of Clinical Surgery, Louisiana State University School of Medicine, New Orleans, etc., With Foreword by Urban Maes, M.D., D.Sc., F.A.C.S., Professor of Surgery and Director of the Department, Louisiana State University School of Medicine, New Orleans. St. Louis: The C. V. Mosby Company. 1941. Price $5.00.

This small volume of 480 pages is a surprise in its completeness. Nothing of importance is omitted. Although the material is condensed, the book is easy to read and is a first class example of lucid brevity.

Because of changing practice due to taking on the new and sometimes discarding the old, this book should be revised at least once in two years. The addition of new material and more personal comments by the authors would not necessarily increase the size of the volume. The omissions which could be made without detracting from the value of the book would provide the necessary additional space. So far as I am concerned continuous irrigation of wounds could be left out of the present volume. Used extensively on the continent and in England and using almost everything from strong bromine and chlorine solutions down to aluminum acetate and salt solution, continuous irrigation again was stimulated in this country by the publication of Von Bergmann's Surgery (Stuttgart, 1896) which contained a description and cuts of Starke's apparatus with tubes and tips. This was the Carrel-Dakin apparatus with a different name.

In my opinion in the not far-distant future, there is something more that might be said about the possible limitations of procedures that are popular and used extensively today.

Certainly there is a field for a continuation of this book and its value would be enhanced by more comments giving the personal opinions of the authors.

J. G. S.

Synopsis of Diseases of the Heart and Arteries. By George R. Herrmann, M.S., M.D., Ph.D., F.A.C.P., Professor of Medicine, University of Texas, Director of the Cardiovascular Service, John Sealy Hospital, etc. Second edition. St. Louis: The C. V. Mosby Company. 1941. Price $5.00.

The second edition of this book is practically a new book as compared to the first edition which was published in 1936. It has been completely revised and rewritten. There are now 448 pages as compared to 328 pages of the first edition. However, the book remains exactly what the title indicates—a true synopsis, without omitting or making too concise or brief any essential discussion.

An excellent chapter on military cardiovascular examinations and interpretations has been added. This fills a definite need in any modern textbook or reference book on heart disease, especially at the present time. This book has been brought entirely up to date, including all the latest treatments and the modern classifications.

The author of this book has certainly accomplished his purpose in preparing an excellent synopsis of cardiovascular diagnosis and treatment. The book will be of special interest to the student and general practitioner and also will make an excellent reference book for the internist.

M. S. F.

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SARCOIDOSIS

REPORT OF TWO CASES WITH PULMONARY INVOLVEMENT

H. I. SPECTOR, M.D.

ST. LOUIS

Sarcoidosis is a disease dating back as far as 1869 when Hutchinson[1] first described it. A review of the literature reveals that information about the condition has accumulated in a most disjointed manner and that it has been described under many names. The dermatologists Besnier[2] and Boeck[3] described it under the term "lupus pernio" and "multiple benign skin sarcoids" or "lupoids" in 1889 and in 1899 respectively. The ophthalmologist Heerfordt,[4] in 1909, described the syndrome presenting iritis or iridocyclitis in association with a febrile subacute swelling of the parotids and bilateral facial palsy. It was Schaumann[5] in 1914, however, who first established definitely the essential identity of these apparently unrelated clinical entities. Schaumann pointed out that the disease may exist in the absence of cutaneous lesions and that it displays a predilection for the lymph nodes, the tonsils, the bone marrow, the spleen, the liver and the lungs. Kuznitsky and Bittorf[6] in 1915 regarded Boeck's sarcoid as a generalized disease and recorded a case in which the lungs definitely were affected. The term "ostitis tuberculosa multiplex cystoides" was used by Jungling[7] in 1919 in presenting characteristic appearances in the digits and metacarpal and the metatarsal bones.

More recently forms of pulmonary lesions with and without hilar lymphadenopathy have been reported that have certain general characteristics in common. They are distributed fairly symmetrically and may consist of small, almost miliary, or of larger foci. These forms have been described under a variety of names as granulie froide, granulie discrete, miliaris discrete, chronic miliary tuberculosis and tuberculids of the lung. Morphologically and clinically these pulmonary findings are identical with those so frequently seen in patients with lupus pernio, Boeck's sarcoid or certain tuberculous affections of the eye.

The justification for grouping all these different affections under one heading is, according to Pinner,[8] clinical, histologic and biologic. Clinically, all these diseases are rather benign and show a certain tendency to intermittance and recurrence. The most important link, however, is that the pulmonary changes already described occur in a considerable percentage of all cases primarily diagnosed as Boeck's sarcoid, lupus pernio, ostitis tuberculosis, multiple cystoides, uveoparotid fever and generalized adenopathy. Histologically, there is not only uniformity but monotony in regard to these lesions, that is, necrosis and caseation are absent. Biologically, it is of interest to note that a large percentage of these patients, as far as they were tested, react only slightly or not at all to tuberculin.

Interest in the study of the disease in this country was stimulated by Longcope and Pierson.[9]

ETIOLOGY

The etiology of the condition still is shrouded in mystery. Boeck considered the disease infectious, closely related to tuberculosis and possibly due to it. Kuznitsky and Bittorf did not regard the disease as tuberculosis but alluded to it as a generalized disease of unknown etiology. Kissmeyer and Nielson[10] believe that the bone lesions resemble more nearly those of leprosy than those of tuberculosis. Rabello[11] advocates the idea that sarcoid is a manifestation of leprosy itself. This opinion has found little favor since it is based on the similarity of the cutaneous lesions of leprosy and sarcoid. Darier[12] is the main exponent of the opinion that sarcoid is a uniform reaction of the body against a multiplicity of possible stimuli of which the tubercle bacillus, possibly in its filterable form, is one. The theory that sarcoid is a form of non-caseating tuberculosis is accepted widely. The failure of numerous investigators to recover tubercle bacilli from the lesions by inoculation of animals, or to stain the bacilli in tissues, has been explained on the ground that the organisms are in a filterable

From the Department of Internal Medicine (Chest Division), St. Louis University.

form or have dissociated into atypical partially acid-fast or nonacid-fast forms. Pinner[8] recently reviewed the arguments for and against this theory.

As one reviews the published data it must be concluded that despite the occasional report of finding tubercle bacilli in the lesion there is little direct proof that the lesions of sarcoid are caused by the tubercle bacillus.

As to the predisposing factors, age and color may play a part. The cases reported by Longcope and Pierson,[9] and George T. Harral,[13] were predominantly Negro. The disease starts in early life. Many cases have been reported from Scandinavia but the disease is known throughout Europe and recognized in this country.

This is the first report to be published of two cases with pulmonary involvement in Missouri.

PATHOLOGY

Pathologically, the absence of caseation has attracted the attention of most pathologists. The essential histologic structure of a sarcoid lesion, whether in the lungs, eyes, skin or bone, is the epithelioid cell tubercle with or without giant cells, with or without marked tendency to fibrosis, but always characterized by the absence or extreme paucity of any other cellular reaction but epithelioid proliferation. There is none or practically no exudation and both polymorphonuclear and lymphocyte reactions are absent. These epithelioid tubercles apparently may exist over longer periods of time without showing any essential changes or they may heal by absorption and by fibrotic transformation. The fibrosis in these cases shows particularly coarse and broad fibers and progresses to complete hyalinization. A further characteristic of these lesions is that acid-fast rods usually cannot be found in them and that more often than not they are sterile both in cultures and in animal inoculation.

SYMPTOMATOLOGY AND PHYSICAL SIGNS

The clinical features attending the pulmonary phase of the disease are varied. Generally it may be stated that the paucity of symptoms and signs is in striking contrast to the extent of the anatomic involvement. Frequently there is to be found little or no elevation of temperature, occasional cough and expectoration and occasionally some loss of weight. When the superior mediastinal and peribronchial lymph nodes are greatly enlarged, dullness over the manubrium and in the interscapular spaces is obtained and there may be bronchovesicular modification of the breath sounds in these areas. Rales rarely are heard. The alterations in the lung sometimes lead to a diffuse fibrosis which in turn may lead to cyanosis and progressive myocardial failure. The most common complication is a frank pulmonary tuberculosis and when this takes place the original characteristics of the sarcoid lesion disappear.

DIAGNOSIS

The diagnosis is based on history of possible previous uveoparotitis, skin lesions, lymph adenopathy particularly of the cervical glands, symtomatology of tired feeling, irregular febrile elevations, some cough and a roentgenogram of the chest. An absolute diagnosis can be made only through biopsy of one of the glands. The laboratory tests that may be of some assistance in diagnosis are blood and roentgenology.

Blood may reveal a slight anemia and usually there is either a monocytosis, an eosinophilia or both. Blood chemistry reveals a total increase in the serum proteins, especially in the globulin fraction, the ratio between the albumin and globulin being reversed. The tuberuclin test usually is negative but may be faintly positive. Sedimentation test may show slight increase. The blood calcium is increased. The blood phosphatase is increased. The cholesterol may be normal or low.

Roentgenologically, the process may be confined entirely or mainly to the hilar nodes. It may involve only the lung fields giving an appearance indistinguishable from miliary tuberculosis. It may involve the nodes and apparently radiate from them into the lung fields. More extreme degrees of these forms have been described. Extensive pulmonary shadows may recede gradually and disappear entirely without even giving respiratory symptoms, or, they may persist relatively unaltered for months or years. On the other hand, there may be little chest involvement as shown in the roentgenogram but lesions can be found in other organs causing prolonged and serious disability. Other writers have described the pulmonary lesion as consisting of small foci evenly and symmetrically distributed, denser in the middle and lower portion of the lungs than at the apices. At times this lesion may suggest a diffuse fibrosis with stringy rather dense shadows in weblike arrangement, radiating from the hilum toward the periphery. They are distinguished by the absence of exudative features and by their stability.

DIFFERENTIAL DIAGNOSIS

In the differential diagnosis, at least from the roentgenographic angle, the following have to be considered: Hodgkin's disease, hilum tuberculosis, miliary tuberculosis, miliary carcinomatosis, diffuse nonspecific post-tuberculous fibrosis, pulmonary congestion, fungus disease and erythema nodosum. King[14] mentions one case that was mistaken for silicosis but found to be sarcoid.

PROGNOSIS

The disease may last for years. Spontaneous healing of the lesion may occur and has been reported.[14] The changes in the lungs as well as those of the bones may disappear entirely. The disease may relapse, involving one organ after another slowly,

seldom producing serious constitutional symptoms and generally resisting treatment.

TREATMENT

There is no known specific treatment for the disease. Arsenic in one form or another has been tried. Ultraviolet light and deep roentgen ray and radium have been tried.

REPORT OF CASES

Case 1. F. M. J., single, Negro, female, social worker, was aged 37.

Past History.—She had not been well since the fall of 1934 when she began to be nervous, weak, lost weight and had trouble with her right eye. This condition was followed with a right facial paralysis. In January 1935 the glands of the neck became enlarged and she continued to lose weight. She went to a clinic where a roentgen ray of the chest (fig. 1) was taken and a diagnosis of hilum tuberculosis was made. She was not satisfied with this diagnosis and in March 1935 consulted an eastern university clinic where a cervical gland was removed, but despite this fact a definite diagnosis was not given the patient. Not being improved she consulted another eastern university clinic where another cervical node was removed and this time a diagnosis of a diffuse chronic adenitis, suggestive of tuberculosis, was made. The patient failed to improve and for this reason consulted a third eastern university clinic in August 1935 where, after a complete study of the patient in the hospital but without biopsy, a diagnosis of Hodgkin's disease was made and she was advised to take deep roentgen ray treatments and bed rest. She took this advice and by March 1936 recovered sufficiently to return to her regular employment as social worker. She continued to take yearly courses consisting of six treatments of deep roentgen ray until October 1940, working up to that time. Early in October 1940, while on a vacation in a different city, she contracted a cold, causing her to consult a physician who made a diagnosis of active pulmonary tuberculosis. I was consulted first on October 25, 1940.

Her family history was negative for contact with tuberculosis.

Physical Examination.—Patient was a fairly well developed Negro female who did not appear ill but did look somewhat malnourished since her actual weight was 105 and should have been 124 for her height and age. Her temperature was 99.4 F., pulse 90, blood pressure 90/60.

Regional Examination.—There was a scar in right neck region due to previous biopsy. A few enlarged cervical glands could be palpated in the supraclavicular region. The chest was symmetrical and expansion was equal. The right as well as the left lung revealed dullness in the interscapular region. Medium posttussive rales opposite the fifth vertebral spine and also below the clavicle close to the axillary region were heard on the left side. Heart and abdomen were normal.

Fluoroscopic examination revealed heavy hilum shadows, especially on the left side. A flat roentgenogram of the chest (fig. 2) revealed that the roundish density situated in the left hilum region seen in fig. 1 had disappeared and in its place a web-shaped diffuse density was seen extending from the cardiac border to the periphery and occupying the hilum in the region of the first, second and third interspaces. Areas of fibrosis also were seen in the hilum region and in the first, second, third and fourth interspaces on the right side. Roentgenogram of the hands and feet were normal.

Laboratory Tests.—Red cell count, white cell count and hemoglobin were within normal limits. Ten sputum examinations were negative for tubercle bacilli. Several concentrated specimens were negative for tubercle bacilli. Guinea pig inoculation was negative for tubercle bacilli. A differential count with the Schilling method revealed no shifting to the left but a predominant eosinophilia from three to six in number. A tuberculin test revealed a one plus local reaction but no general or focal reaction.

Reexamination on several occasions revealed the only changes to be a disappearance of the rales heard on the first examination. Within a week the acute respiratory symptoms that the patient had on first examination had disappeared. Patient was told to return to work and has been working ever since.

Comment.—The physical findings and roentgen ray examination strongly suggested tuberculosis. However, the history of the patient, the negative sputum findings, the weak positive tuberculin test and the cervical adenopathy were against tuberculosis. The duration of this disease was against a diagnosis of Hodgkin's disease. It is for this reason that I began to suspect the possibility of sarcoidosis and began correspondence with the previ-

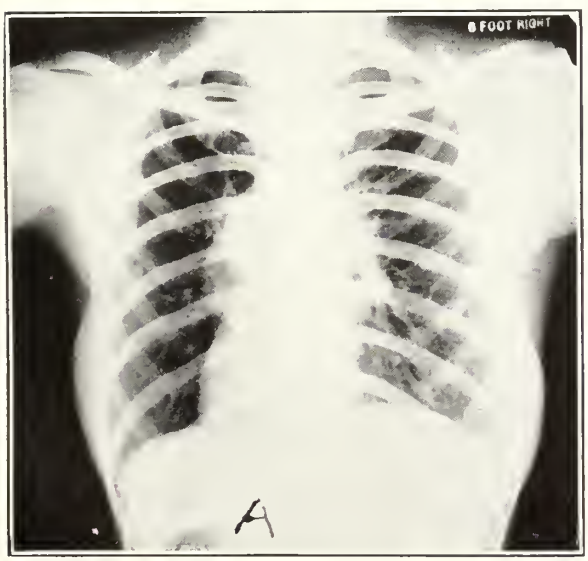


Fig. 1. Case 1, October 1934.

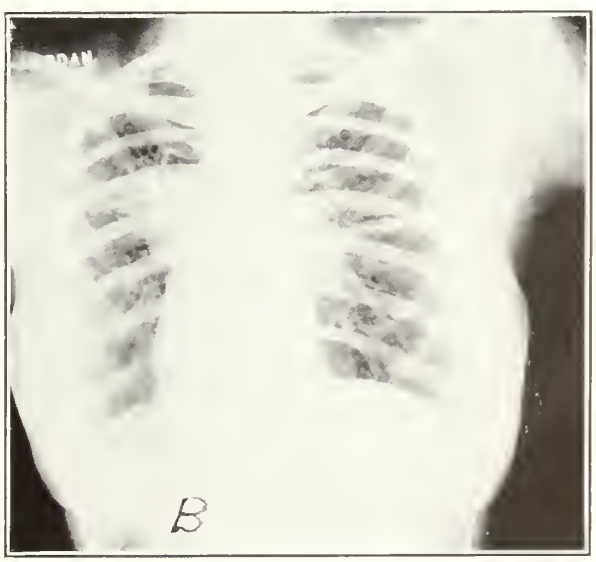


Fig. 2. Case 1, October 25, 1940

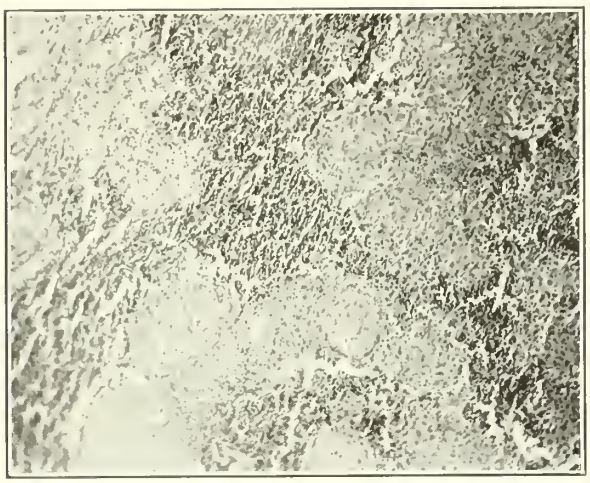


Fig. 3. Section of cervical gland showing the epithelioid cell tubercles.

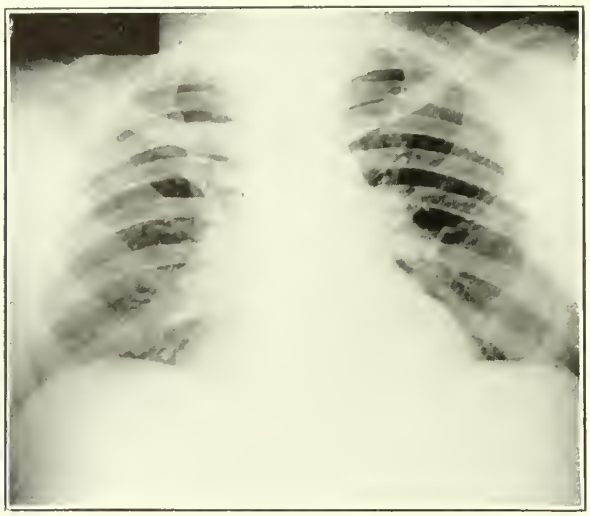


Fig. 5. Case 2, May 27, 1941.

ous clinics where glands of the patient were removed for biopsies. Two of the clinics after reviewing the biopsies informed me that their former diagnosis was erroneous and that the condition was undoubtedly that of sarcoid. Figure 3 represents a section of a cervical gland which shows the epithelioid cell tubercles.

Case 2. M. G., white male, attorney, aged 23, was first seen at home on July 6, 1940. His chief complaints were cough with expectoration for the last two weeks, a tired feeling and fever.

Physical Examination.—Pulse was 90, temperature 100 F., respiration 22.

Regional Examination.—There was marked dullness over both hilum regions but no rales. Temperature subsided in a few days and on July 13, 1940, patient came to my office for a more complete examination.

Fluoroscopic examination at that time revealed unusual heavy hilum markings.

A flat roentgenogram (fig. 4A) revealed heavy markings in both hilum shadows. In the left hilum region the density resembled a tumor mass which could be interpreted to be either Hodgkin's disease, tuberculosis or any other lymphoblastoma. There was a general widening of the upper mediastinal shadow. The patient was told to remain in bed, which he did under protest. A reexamination on July 18, 1940, revealed practically the same findings. He continued to cough and fever varied from 99.2 to 100 F. and respirations from 18 to 24. On August 30, 1940, the cough became worse. Temperature was 99.8 F. Respirations were noticeably labored on exertion. He also complained of tiring easily on exertion. Reexamination failed to reveal any essential changes from the previous examination. Repeated sputum examinations were negative. Repeated white counts were between 4,000 and 6,000. Red counts were around 5,000,000 and hemoglobin between 90 and 95 per cent. The Schilling count revealed a mild shifting to the left and a persistent eosinophilia varying from five to eight in number. A tuberculin test was negative. A roentgenogram on November 26, 1940, (fig. 4B) revealed a beginning resolution best noticeable in the left hilum region. By this time the patient had improved considerably so that he was able to return to work but was advised to rest in the evening and avoid heavy exercise. A more recent roentgenogram, May 27, 1941, (fig. 5) shows further clearing of the lesion. For the last six months the patient has been free of symptoms except for perspiring easily and tiring easily. He also complains of slight shortness of breath on exertion.

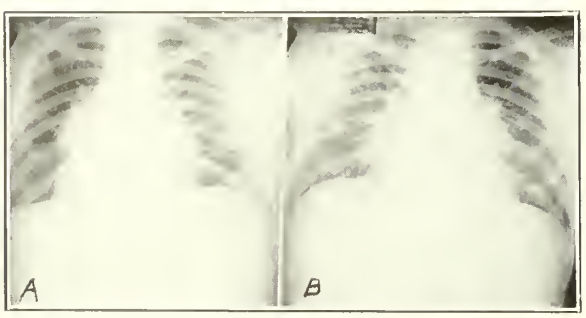


Fig. 4. A. Case 2, July 13, 1940. B. Case 2, November 26, 1940.

His family history was negative for tuberculosis.

Comment.—This is not a proved case since no glands were available for hiopsy but the mediastinal roentgen ray shadows, the negative tuberculin test, the negative sputum tests, the leukopenia, the tendency to eosinophilia and the duration of the illness plus the tendency to spontaneous healing despite any special treatment are all strongly suggestive of sarcoidosis.

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PROPHYLAXIS IN EPIDEMIC INFLUENZA

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It is now generally agreed that the symptom-complex called influenza is not a single clinical entity but an epidemic entity of diverse etiology which may recur in a community at regular intervals.[1] The possible coexistence of numerous serologic types of virus during a single epidemic obviously complicates development or use of a specific type of prophylaxis.[2]

Soon after Smith, Andrewes and Laidlaw[3] reported the recovery of a filtrable virus from ferrets inoculated intranasally with nasopharyngeal washings of influenza patients, numerous serologically related strains were isolated in different parts of the world. Francis[4] recovered a strain of virus from ferrets inoculated with throat washings obtained from patients during an outbreak of epidemic influenza in Puerto Rico. During subsequent years this virus, now known as influenza A virus,[2] was recovered from influenza patients during epidemics in Australia (Burnet[5]), Russia (Smorodintsev and associates[6]), Alaska (Pettit and associates[7]), and England (Andrewes and associates[8] and Hoyle and Fairbrother[9]). The same virus has been recovered during outbreaks in the United States in New York (Horsfall and associates[10]), Philadelphia (Pettit and associates[7]), Chicago (Clampit and Gordon[11]), Baltimore (Hyde and Chapman[12]) and more recently in St. Louis (Sulkin and associates[13]).

In 1940 Francis[14] reported isolation of a new type virus (influenza B virus known as the Lee strain) of relatively low virulence. Another strain of influenza B virus, closely related to but not identical in antigenic composition with the Lee strain, was isolated by Eaton and Beck.[15] Doubtless additional strains of influenza A and B virus, as well as viruses from influenza of unknown cause (X), will be isolated in the future.

Subsequent to their discovery of a virus associated with epidemic influenza, Smith, Andrewes and Laidlaw[16] observed that ferrets which had recovered from an infection were resistant to reinoculation of the virus for a period of three months. They also reported that both mice and ferrets may be rendered relatively resistant by subcutaneous inoculations of the virus. These observations were confirmed by Francis and Magill[17] who later demonstrated that a persistent antibody response may be elicited in human subjects by the subcutaneous inoculation of a living culture virus.[18,19] Andrewes and Smith [20] found that virus inactivated with formaldehyde produced immunity in mice almost equal to that produced with living virus. These investigators also demonstrated a definite rise in protective antibodies in human subjects by subcutaneous injections of infected mouse lungs filtered through a gradocol membrane.

Laidlaw and his associates[21] produced a hyperimmune horse serum which was shown to be effective prophylactically when administered intranasally to mice twenty-four hours before introduction of the virus. A decrease in the mortality was observed when the serum was given from twenty-four to seventy-two hours after the introduction of the virus. The incidence of infection in these mice, however, was apparently unchanged. The British workers were not optimistic in their discussion of the probable merits of hyperimmune horse serum as a prophylactic or therapeutic agent.

Stokes and his associates[22] reported the results of vaccination against epidemic influenza with active virus. These are the first extensive studies relating to the protective effect of vaccination against clinical manifestations of the disease in man. Three intramuscular injections of living virus from infected mouse lungs or chick embryo tissue culture were given at intervals of one week. One group of individuals received swine influenza virus, others were vaccinated with human influenza virus (PR-8), while a third series, receiving no virus, served as a control. In the epidemic of influenza which followed soon after the study was initiated, the attack rate was practically the same in the control group and the individuals receiving the swine virus. The resistance to infection in the group vaccinated with the human strain of influenza virus was significantly lower. In a subsequent study in which three injections of larger amounts of active culture virus (PR-8) were given, Stokes and his associates[23] observed that the resistance to the disease was lower among those who were vaccinated than in the control group. In these experiments the vaccinations were made during the fall and an epidemic of influenza occurred during the following winter.

Smith, Andrewes, and Stuart-Harris[24] vaccinated several groups of volunteers with a formaldehyde-inactivated virus prepared from infected mouse lungs. They observed that the number of persons who developed influenza two weeks or more after the date of vaccination was not significantly different among the vaccinated and the controls. Since the virus recovered from four vaccinated individuals during subsequent attacks of the disease was not antigenically identical with the virus used in the preparation of the vaccine, the disease may have differed etiologically and hence invalidated their results.

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Taylor and Dreguss[25] extended the studies of Smith, Andrewes and Stuart-Harris when it appeared that an epidemic of influenza might invade Hungary. The formaldehyde-inactivated virus used in these experiments was supplied by the British investigators. One injection of vaccine (prepared with the WS strain of virus) was given to 306 persons and 336 persons were kept under observation as controls. No cases diagnosed as influenza had occurred among any of the groups when the vaccinations were made. During a mild epidemic which ensued shortly after the individuals were vaccinated, fourteen of those vaccinated and twenty of the controls developed symptoms of influenza. A virus of human influenza type was isolated during an acute attack from three of the controls and from one of the individuals vaccinated and blood samples from three of the vaccinated individuals showed no increase in protective antibodies as a result of the vaccination, indicating the apparent ineffectiveness of the vaccine.

No significant protection was noted by Siegel and Muckenfuss[26, 27] in a large series of individuals vaccinated with two preparations of living influenza virus. One vaccine was prepared from the PR-8 strain and the other from four human strains including PR-8 and one strain of swine influenza.

No convincing evidence has been presented to show that vaccines thus far used are effective in preventing the occurrence of influenza in man. Recently, Horsfall and Lennette[28] reported that a formalinized complex vaccine containing both influenza A virus and canine distemper virus was highly effective in the immunization of ferrets against antigenically different strains of influenza virus. Ferrets which had been given the complex vaccine were solidly immune to infection by antigenically different strains of influenza A virus for at least three months. Subsequently, these investigators found that a similar formalinized complex vaccine prepared from chick embryos infected simultaneously with both influenza A virus and canine distemper virus was effective in stimulating the production of additional neutralizing antibodies against influenza A virus after a single subcutaneous injection in man.

Horsfall, Lennette and Rickard[29] reported that this vaccine was more effective than other preparations in stimulating the production of neutralizing antibodies against the influenza virus. They found that the neutralizing antibodies which resulted from administration of the vaccine remained almost unaltered for at least five months. Rickard and his associates[30] showed that the level of neutralizing antibodies in the serum against the homologous virus is an important factor in determining susceptibility or resistance to influenza A and to influenza B in human beings. They showed that high antibody levels against influenza B virus reduce the incidence of influenza A, but that influenza of unknown cause occurred more frequently among individuals whose sera contained high concentrations of antibodies against influenza A and B viruses. The authors could offer no explanation for this observation.

Since it has not been established firmly that antibody levels reflect the actual efficacy of a vaccine it becomes necessary to analyze statistically the resistance of vaccinated and nonvaccinated individuals exposed to an epidemic of influenza of determined etiology. Several such studies have appeared in the literature and clinical evidence is now available concerning the prophylactic value of the complex vaccine developed by Horsfall and Lennette.[28]

Dalldorf, Whitney and Ruskin[31] reported the results of a controlled clinical trial of this vaccine in a small institutional outbreak. One half of the subjects were vaccinated with the complex chick embryo influenza A vaccine and a few scattered cases of influenza appeared in the institution several weeks later. Of seventy-seven persons who contracted the disease, thirty-two had been vaccinated and forty-five had not. Evidence that the epidemic was due in part to influenza A was established by serologic evidence since 87 per cent of the control group of nonvaccinated individuals and 71 per cent of the vaccinated group showed a rise in specific complement-fixing or neutralizing antibodies. According to these investigators, the vaccine was found to increase the neutralizing antibodies but not to prevent influenza. They believe, however, that the vaccine favorably modified the severity of the disease.

Edwards and Sulkin[32] inoculated a group of individuals with the complex influenza A-distemper chick embryo vaccine supplied through the International Health Division of the Rockefeller Foundation. The St. Louis city-wide epidemic[33, 34] together with several institutional outbreaks[13] were already apparent when the inoculations were made. A total of 152 individuals were inoculated with the complex vaccine, each person receiving a single injection of 1.0 cc. given subcutaneously. No significant reactions occurred following injection of the vaccine. A preliminary serum specimen was obtained from each of twenty-six persons before vaccination and additional specimens were obtained at varying intervals after vaccination. The neutralizing antibody titers of these sera against the PR-8 strain of influenza A virus were determined as described in other reports.[33, 34] The results of these tests indicated that the neutralizing antibodies resulting from the administration of the vaccine persisted for six months, confirming the observation of Horsfall, Lennette and Rickard.[29] Although many cases of influenza occurred in the institution in which these persons worked, none of the vaccinated individuals developed the disease.

Martin and Eaton[35] tested two influenza A vaccines in two large institutions in Northern California. An active virus vaccine was prepared by growing influenza A virus in minced chick embryo suspended in saline. The complex influenza A-

distemper formalinized vaccine was supplied by Dr. Horsfall. A group at each institution was vaccinated two weeks before an outbreak of acute febrile respiratory disease diagnosed clinically and serologically as influenza A. In one institution 416 persons were vaccinated, 193 with the active-virus vaccine and 223 with the inactive complex vaccine, and 4,560 nonvaccinated individuals served as controls. In the second institution 430 persons were vaccinated, 169 with the active-virus vaccine and 244 with the inactive complex vaccine, and 2,487 nonvaccinated individuals served as controls. In the first institution the incidence of infection in the vaccinated and control groups was 6.7 per cent and 8.0 per cent respectively, while in the second institution the incidence in the vaccinated groups was 6.8 per cent as compared to 15.5 per cent in the control group. A summary of the morbidity incidence in both institutions indicates that 6.7 per cent of the 829 vaccinated persons contracted influenza while 10.65 per cent of the 7,047 nonvaccinated controls contracted the disease. Martin and Eaton conclude that "there was no obvious difference in the prophylactic efficacy of the two vaccines in the relatively small group of 829 individuals studied."

Brown and his associates[36] presented the results of a clinical and epidemiologic investigation made during an epidemic which occurred in San Francisco in November and December 1940 and January 1941. Two hundred and seventy-three individuals were inoculated with the complex influenza A-distemper vaccine, while approximately 1,000 others served as controls. In the epidemic which was in progress a few days before the first inoculations were made, influenza A and a febrile respiratory disease of unknown etiology (influenza X) occurred simultaneously. There was no evidence of infection with influenza B in the group studied. A marked reduction in the incidence of influenza A occurred in the vaccinated group (13 per cent to 15 per cent) as compared to the controls (25 per cent to 43 per cent). These authors concluded that some protection was afforded by vaccination with the complex vaccine. Their data, however, does not show that efficient protection resulted.

An extensive study to determine the efficacy of the complex vaccine was recently reported by Horsfall and his associates.[37] During October 1940, 7,907 persons in fifteen institutions in Florida and Alabama were given a single subcutaneous injection of the complex vaccine. The remaining 9,688 individuals in these institutions were not vaccinated and served as controls. In ten of these institutions epidemics of influenza occurred four months after the vaccine had been given. The results of parallel neutralization and complement-fixation tests in a large group of vaccinated and control individuals were sufficiently similar to justify the use of the latter test in establishing an etiologic diagnosis. A total of 1,450 cases of influenza occurred in the ten institutions and it was possible to make an etiologic diagnosis in 967 cases. The results of these studies indicated that one injection of the complex vaccine given four months before the occurrence of epidemic influenza significantly reduced (50 per cent) the incidence of influenza A in the vaccinated group as compared with the control nonvaccinated group. The extent to which the incidence of influenza A was reduced apparently was related to the extent to which specific antibodies against influenza A were increased. Prior to the discovery of this complex vaccine, and based on this survey of the literature, it seems that no vaccine, hitherto used, regularly produced immunity to influenza in humans. The complex inactive influenza A-distemper vaccine appears to be as effective as vaccines prepared with active virus.

In the studies on human beings, with which this review is concerned, no conclusive proof of the effectiveness of vaccination against influenza A has been shown. The following factors complicated evaluation of the results: (1) In some instances an epidemic of influenza was already in progress at the time experiments were begun.[33,36,38,39] (2) In other studies the number of individuals vaccinated was too small to be statistically significant. (3) The attack rate in the experimental group was too small for accurate conclusion in some studies. (4) Laboratory studies to determine the cause of the respective outbreaks have been incomplete. (5) In two studies[23,24] influenza A virus was obtained from individuals vaccinated with the homologous virus. An analysis of the results of the clinical evidence concerning prophylactic measures available indicates, however, that the recently described complex vaccine, while not entirely effective, offers the best method of vaccination which has thus far been developed.

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THE ABNORMAL MENTAL REACTIONS OF OLD AGE

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For many years the problems of old age have been neglected as far as the medical profession has been concerned. The few discussions that have arisen have been largely academic and few practical, constructive advances have been made. The question seemed to have been solved, the situation was hopeless, and until a method of preventing or curing arteriosclerosis was discovered, practical men were not interested.

The subject has been a fertile field for activity for sociologists, economists and philosophers, both amateurs and professionals. Their activities have produced many of the by-words and social "advances" of modern civilization and have led to many movements which have had far reaching effects upon the older members of human society. Unfortunately for the old in years but not of mind, the attitude of the medical profession and the conclusions of the social planners are not based upon proved facts but are assumptions and theories.

Medical leadership in this work has been practically nonexistent. But the problem is primarily medical because old age can be considered to be a disease. It is a disease which, at the present time, is assuming a large incidence because advances in medicine have increased the life span so that 67 per cent of today's population can be expected to reach the age of 60, while 42 per cent can be expected to reach the age of 70.

This trend in population age has produced some alarming developments in the field of psychiatry. Dayton[1] shows that approximately 3 per cent of all people between 60 and 70 are admitted to mental hospitals, 5 per cent of those between 70 and 80, 8 per cent of those between 80 and 90 and 7.5 per cent of those over 90. These figures are accumulative and, therefore, 23.5 per cent of all those who pass the age of 60 can be expected to enter a psychopathic hospital. These figures do not include the thousands of mentally incapacitated older people who are kept at home, placed in convalescent and nursing homes or in "old folks" or county homes who never become violent enough or deteriorated enough to warrant confinement in mental hospitals.

No other type of disease has such a high incidence. One out of every four persons over 60 can be expected to develop a mental disorder of a severe enough degree to necessitate taking him from his home and separating him from his family during his last few years of life. Heart disease will destroy only one in about every 400 people in any given year, and in any given period of forty years of life can be expected to take one in nine. The figures for cancer are about one in 900 each year and one in twenty-two during a forty year life span. Yet great sums are spent each year to study cancer and diseases of the heart. I know of only a few groups, and they are entirely unsubsidized, who are taking any active, constructive interest in the mental illnesses of old age. The average practitioner is usually actively disinterested in the problem.

While these figures may not seem to have anything more than an academic importance, every practitioner who does general work should remember that 16 per cent of his present practice will some day develop a psychosis during the older years of sufficient intensity to require psychopathic hospitalization, and while figures are not available I should say that twice as many more will develop some abnormal mental reactions.

If all of these abnormal mental reactions resulted directly and exclusively from pathologic changes in the nervous system, the handling of these cases would remain in the field of supportive and symptomatic therapy until the cause, prevention and specific treatment of arteriosclerosis and the senile degenerative diseases have been discovered. These pathologic changes are irreversible and the symptoms produced naturally would be irreversible.

However, there has developed a trend of thought recently, confirmed by both pathologic and clinic observations and studies, which has shown that older concepts are wrong and that all of the older attitudes and conclusions in regard to the mental diseases of old age should be revised. Pathologic studies in the past have influenced thinking far out of proportion to their real importance. Efforts have been made to develop classifications of clinical syndromes based on pathologic studies alone without taking into consideration any other factors. These have not been successful. One of the most exhaustive studies of this type was made by Rhein, Winkelman and Patten.[2] However, over 30 per cent of their cases did not fit exactly into their classifications, based upon correlations between symptoms and postmortem material. Gellerstedt[3] and Roths-

child[4] pointed out that there is no exact correlation between the intensity of mental symptoms and the severity of the pathologic findings. They found many brains with severe pathologic changes in cases in which there was no history of mental symptoms. Riggs[5] also has observed this.

Rothschild[6] pointed out the difficulty of exact diagnosis and differentiation of senile dementia and arteriosclerotic psychosis, using pathologically proved cases for his material. He pointed out also the high incidence of other types of psychotic reactions which develop in the later years of life and which do not result from irreversible pathologic changes. It would seem from these studies that some doubt must be cast upon the specificity of pathology in the brain as an etiologic factor in the several psychotic processes seen in old age. Etiologic determinations in scientific medicine should be based on established laws. If a cause produces symptoms in one case, it will do it every time unless there are variable factors. It would seem from the foregoing that there must be variable factors which have not been taken into consideration in the past.

Wartman's[7] studies have an important place in this correlation. He found in 500 consecutive autopsies that 90 per cent of the men and 85 per cent of the women over 60 years of age had marked cerebral arteriosclerosis. All of the rest had some pathologic condition in their brains at the time of death. These statistics confirm the concept that pathology is not the only factor. It is known that 90 per cent of the men and 85 per cent of the women over 60 years of age are not afflicted with mental symptoms. Freeman[8] introduces the section of senile dementia in his textbook with the following paragraph:

"The difficult distinction between what is normal and what pathologic in old age applies to cerebral changes as well as to all others. Nevertheless, there is a syndrome well characterized both clinically and pathologically that stands more or less separate from other affections of the senile period. Inasmuch as it is found also at much earlier periods of life, the term presenile dementia or Alzheimer's disease, is appended. The two cannot be distinguished except by the age of the patient. There is nothing found in the brains from these cases that does not occur in normal individuals in the ninth and tenth decades of life, but there is probably a greater degree of change in those who have shown mental symptoms. Even this is sometimes called in question, however."

It would seem that "normal" people over 60 have severe pathologic changes in their brains and that psychotic patients frequently have little or no pathologic changes. I do not intend to deny the proper place of these changes in the total psychiatry of old age. Michael,[9] in discussing the psychoses accompanying cardiac decompensation, expressed my concept. He said that arteriosclerosis may be one of the causes that modify the course of a mind disordered during cardiac decompensation to the extent that prompt recovery, the rule in patients who have recovered from heart failure signs, is delayed.

If this reasoning is correct and pathology can at last be placed in its proper place in the total thinking about this problem, medical science can proceed to search for the other and, perhaps, more important etiologic factors. Many of them are already known because the same principles of psychobiology and psychopathology which are applied to younger individuals can be used in approaching the older patient, once defeatism and rigid pathologic interpretations have been eliminated.

Several clinical reports have been made which express optimism. I reported a series of sixteen older patients with acute confusional states who were actively treated with intravenous glucose infusions.[10] Thirteen of these patients made a complete recovery. Larson[11] confirmed these observations on the acute delirious reactions.

One hundred patients with abnormal mental reactions which developed during the senile years were analyzed by Clow,[12] and it was found that forty-nine recovered sufficiently to return home. Braceland, Palmer and Hastings[1] reported upon the results in a series of arteriosclerotic psychoses and senile dementia patients. They found that 24.4 per cent of the total series, twenty-three arteriosclerotic and seven senile dementia patients recovered sufficiently to return home.

These clinical observations show that all psychoses of old age are not irreversible. Since they are not, the cause or causes should not be irreversible. In other words, the sole cause of all abnormal mental reactions of old age is not irreversible pathologic conditions in the brain—that is, cerebral arteriosclerosis, senile degeneration or both.

Recently I reported upon the clinical results from active treatment in a series of fifty consecutive actively treated patients with severe abnormal reactions who were more than 60 years of age.[13] Twenty-five, or 50 per cent of this series, made a complete recovery under treatment and resumed their former places in society. Ten, or 20 per cent, had a social remission and were able to be at home without active supervision. A six months' follow-up study showed that twenty of the thirty-five cases who had a good remission had been out of the hospital six months or longer and had been contacted. Seventeen, or 85 per cent of those contacted, were in the same state as at discharge. Two had relapsed and one had died an accidental death.

All of these figures, observations and conclusions have been applied in the work at the Neurological Hospital. The results derived from this constructive, optimistic approach have been both surprising and gratifying.

I have applied these conceptions to my diagnostic interpretations during the last four years and I believe that former statistics of disease type incidence are wrong. Since this study was started in 1937, 119 patients more than 60 years of age with

severe abnormal mental reactions have been examined. The diagnostic breakdown of the 119 cases is seen in table 1.

Table 1. *Diagnostic Breakdown of 119 Cases*

Senile dementia	19
Arteriosclerotic psychosis	12
Affective reactions (including involutional melancholia)	40
Primary toxic delirious reactions	26
Psychoneurosis	11
Miscellaneous reactions	11
Total	119

Immediately the low incidence of senile dementias and arteriosclerotic psychosis in this series is noted. Clow does not handle the classification of the 100 reported cases in exactly this way. His series was selected because the patients had arteriosclerosis. This series was composed of all cases more than 60 years of age. Clow did not attempt, apparently, to break the series up into diagnostic syndromes but rather grouped them according to the major presented symptom or symptoms. It was reported that thirty-four patients had delirium, nineteen agitative depression, eighteen mental confusion, five depression, five manic-like states and four paranoid states. In fourteen patients, deteriorated behavior was the outstanding feature. In twenty-six patients the onset of a psychosis appeared directly related to a vascular accident. Since in the series reported here only twelve cases had the psychotic onset in relation to a vascular accident, it would seem that the types of material in the two series differed somewhat. Yet in Clow's series, classical senile syndromes were in the minority.

Definite diagnostic criteria have been set up for the organic reaction types. Senile dementia is diagnosed only when the condition has been present for a long time and has been slowly progressive throughout the years, with or without acute episodes. Confusion and deteriorated behavior both must be present. Muncie's[14] criteria have been used for the diagnosis of arteriosclerotic psychosis. He points out that the clinical picture of this condition is distinguished by the uneven deteriorative changes, the presence of focal signs, general and retinal arteriosclerosis and the exclusion of other factors. Only twelve of my cases had focal signs indicating an area of brain destruction. I feel that a severe abnormal mental reaction resulting from a single vascular occlusion is very rare because large areas of the brain must be destroyed before permanent mental symptoms develop. I have made these criteria rigid and when the symptoms of a case do not fit the criteria exactly, I have considered other diagnoses and have always been able to place the case in another group. The low incidence of organic reactions undoubtedly results from this diagnostic strictness. The older patient is very susceptible to delirious processes and these symptoms frequently complicate the clinical picture, producing mixed types that are difficult to evaluate and diagnose. The usual patient with a toxic delirious reaction superimposed upon an agitative depressive reaction may resemble an arteriosclerotic process so closely that final determination of the several processes cannot be made until after the toxic delirium has been eliminated.

Active treatment of this group has been an interesting experience. Clinical results have confirmed these formulations. Seventy-nine patients received adequate therapy, using every possible method that has been made available through recent studies. Of these seventy-nine, forty-seven (59.5 per cent) made a complete recovery from their abnormal reactions and were able to return home and resume their places in society. Fourteen (16.5 per cent) recovered sufficiently to live at home with a minimum amount of supervision. Five (6.3 per cent) improved slightly and could be kept at home under favorable circumstances. Ten (12.6 per cent) showed no change and remained under custody, while only three (5.1 per cent) died during treatment. The diagnostic breakdown of the treated cases and their condition on discharge are shown in table 2.

Table 2. *Condition on Discharge*

	Total	Condition on Discharge				Died
		1	2	3	4	
Senile dementia	12		1	2	8	1
Arteriosclerotic psychosis	8	1	3	2	2	
Affective reactions	31	26	4			1
Primary toxic delirious reactions	20	17	2			1
Psychoneurosis	5	3	1	1		
Miscellaneaus reactions	33		3			
Totals	79	47	14	5	10	3

I may be criticized for grouping together all of these cases for statistical purposes because the prognosis is so variable among the several conditions. I have done so in order to point out the high incidence of syndromes that are treatable by modern methods in a series of psychotic patients over 60 years of age as well as to show the gratifying results when active measures are applied to the older mental patient. I know even better than before I started this work that the true organic psychosis has a poor prognosis; but the high incidence of conditions with a good prognosis in a group of this type is the important point to be stressed. It would seem that irreversible pathologic condition is a relatively unimportant factor in the total etiology of many of these cases, yet Wartman points out that the high incidence of cerebral arteriosclerosis in all patients more than 60. One can certainly assume that this group was no exception and that the vast majority had an advanced cerebral arteriosclerosis.

Forty of the sixty cases who returned home have been out of the hospital longer than six months and have been contacted. Table 3 shows the result of the follow-up survey.

While these results are a little discouraging on the surface, several relapses can be attributed to environmental conflicts beyond control. This does not excuse these failures because to me a complete recovery means the development of an ability to

Table 3. *Results of Follow-Up Survey*

	6 Months Follow-Up Received	Number in Same Condition as at Discharge	Number Who Relapsed	Number Who Died From Other Causes
Senile dementia	1	1	0	0
Arteriosclerotic psychosis	2	0	1	1
Affective reactions	18	13	3	2
Toxic delirious reactions	14	11	3	0
Psychoneurosis	3	2	1	0
Miscellaneous reactions	2	1	0	1
Totals	40	28	8	4

meet any stress or strain. It is offered only as the explanation.

But 70 per cent of the good results were sustained for six months or longer, showing that in the majority of the cases the good results did not come from any form of symptomatic relief or stimulation but rather that certain etiologic factors must have been corrected. This is additional evidence that irreversible pathologic conditions played a minor part in the total etiology of these patients.

REPORT OF CASES

Case 1. Mrs. E. G., aged 84, widow, mother of twelve children (seven dead from acute infections) was hospitalized from May 22 to July 7, 1939, six and a half weeks. Chief complaints were extreme agitation, insomnia, depression, delusions, hallucinations and disorientation.

Onset.—One year previous to hospitalization patient began to lose her eyesight. She became quite disturbed over this as well as over financial reverses. Five months previous to hospital admission, patient became "trembly all over" and agitation grew worse rapidly. On admission the patient stated: "My eyes are rotting and running out of my head." "I'm going to be killed tonight." "I'm in a house of prostitution." "There are microphones in the walls." Her gallbladder had been removed twenty-five years previously and she had had sinusitis eight years previously.

Examination.—The patient was an gitated, fearful, dehydrated old lady. Retinae in the left eye were detached. Heart tones were weak; arrhythmia was marked; there was dependent edema.

Laboratory Examination.—Urine showed 1 per cent sugar and a trace of albumin. Red blood cells were 5,500,000; white cells, 11,400; Hb. 90 per cent; blood sugar, 112 mg. per 100 cc.; nonprotein nitrogen, 40.5 mgs. per 100 cc.; glucose tolerance, mild diabetic-like curve; electrocardiogram showed defective intraventricular conduction; sinus tachycardia; probably diffuse myocarditis.

Treatment.—Convulsive shock.

Result.—There was complete remission. She has remained well to date.

Comment.—This was a typical case of agitative depressive psychosis occurring in an 84 year old woman. Convulsive shock therapy was specific. Although the patient had ocular and other evidence of arteriosclerosis, it was not the etiology of the illness.

Case 2. Dr. W. O. H., aged 76, married with two children living and well, was hospitalized from December 15, 1939, to January 19, 1940, five weeks. Chief complaints were agitation, clouding of consciousness, insomnia, loss of weight.

Onset.—Two months before admission to the hospital, patient slipped and fractured the left patella. He was in bed in a cast for two weeks. The cast was removed but insomnia developed and many kinds of sedatives were given. There was a steadily increasing cloudiness of memory and thought with increasing nervousness and agitation.

Examination.—Although the patient showed evidence of recent weight loss and dehydration, he was in excellent physical condition for his age. Agitation was marked and there was no continuity of thought.

Laboratory Examination.—Urine showed a trace of albumin, 0.5 per cent sugar and urobilinogen was increased. Red blood cells 5,650,000; white cells, 12,350; Hb. 103 per cent; blood sugar 86.9 mgs. per 100 cc.; nonprotein nitrogen 35.81 mg. per 100 cc.; calcium 9.8 mg. per 100 cc.; glucose tolerance, mildly diabetic-like. Roentgen ray showed skull and chest were normal.

Treatment.—Glucose infusions daily.

Result.—There was slow, steady improvement in the hospital with a complete remission to date.

Comment.—This was a case of senile delirium which developed after a series of physical and psychic traumata.

Case 3. Mrs. A. J., aged 62, widow, no children, was hospitalized from September 12 to December 12, 1940, thirteen weeks. Chief complaints were weakness, difficulty in walking, and innumerable pains, aches and nervous manifestations.

Onset.—Ten years previous to present illness, the patient was treated for psychoneurosis. She has had almost continuous hospitalization and treatment since then. Her condition had become worse during the last year and she received sedatives and treatment for low blood pressure. When the patient entered the hospital she could walk only with help. She had been depressed for the last eight months.

Examination.—She was a healthy appearing elderly lady whose only physical abnormality was a small postoperative abdominal hernia. Her complaints were legion and bizarre, i. e., "My hands feel like they are hollowed out." There was no agitation present.

Laboratory Examination.—Urine was normal. Red blood cells were 5,350,000; white cells, 7,150; Hb., 85 per cent; blood sugar 88.1 mgs. per 100 cc.; nonprotein nitrogen 35.28 mgs. per 100 cc.; glucose tolerance normal. Roentgenogram showed skull essentially normal. Roentgenogram of chest revealed a Gohn tubercle and other evidence of old healed tuberculosis.

Treatment.—Insulin shock treatment and psychotherapy.

Results.—There has been complete remission to date (first remission in ten years).

Comments.—This patient had been incapacitated from psychoneurosis for ten years. Under insulin shock and psychotherapy, her insight and adjustment became excellent.

Case 4. Mrs. H. L. W., aged 68, married, four children living and well, was hospitalized from November 22 to December 27, 1940, five weeks. Chief complaints were mental confusion, disorientation, insomnia, hallucinations and delusions.

Onset.—In March 1940 the patient was on a vacation. While in Little Rock, Arkansas, she became disoriented for place, imagining herself to be at her home in Kansas City. This condition became gradually worse with delusions, hallucinations and increasing agitation until it was impossible for patient to be kept at home.

Examination.—Weight was 91 pounds. The patient was a thin, dehydrated old woman whose cheerfulness was marked in spite of her mental confusions. She was delusional and frequently disoriented. She hallucinated actively at times.

Laboratory Examination.—Urine showed a trace of albumin. Red blood cells were 4,900,000; white cells 11,500; Hb. 84 per cent; blood sugar 94.3 mgs. per 100 cc.; nonprotein nitrogen 27.27 mgs. per 100 cc. Serology was negative for syphilis. Glucose tolerance was normal. Roentgenogram showed skull and chest essentially normal.

Treatment.—Infusions of 10 per cent glucose daily. Insulin in sedative doses.

Results.—Agitation disappeared gradually. She became less confused but memory for recent events was unimproved.

Comment.—This patient had true senile dementia upon which was superimposed a delirious element. When the latter was corrected the patient could be kept at home with an untrained attendant.

Case 5. Mr. L. A. C., aged 71, married, one child living and well, was hospitalized from August 5 to September 4, 1940, four weeks. Chief complaints were irritability, agitation, thought block, left-sided paresis, right facial paralysis.

Onset.—In 1938 the patient had a right sided "stroke" following which he developed difficulty in expressing himself. He became listless and took little interest in life. Ten weeks before admission to the hospital he had an attack similar to the first one. This caused some paresis and anesthesia of the left side of the body. He became gradually more disturbed and agitated. He could say words but there was a noticeable thought block.

Examination.—Patient was an elderly male with evidence of recent weight loss and dehydration. Agitation was marked. There was right-sided facial paralysis and anesthesia and left-sided body paresis and anesthesia which included abdominal muscles. Patient answered questions incompletely and irrelevantly.

Laboratory Examination.—All laboratory tests including glucose tolerance were normal. Roentgenogram of the skull revealed erosion of the posterior clinoid process and possibly some calcification of the pituitary gland.

Treatment.—Infusions of 10 per cent glucose daily.

Result.—Condition remained static under treatment but his decline was marked after treatment was discontinued. The patient died two months after leaving the hospital.

Comment.—The irreversible psychosis developed after this patient had his second intracranial accident as a result of cerebral arteriosclerosis.

Case 6. Mr. G. P., aged 65, married, no children, was hospitalized from March 17 to March 22, 1940, five days. Chief complaints were disorientation, memory lapses, limitation of speech to a few unintelligible sounds, marked right-sided paresis.

Onset.—Five and one half months previous to hospitalization, the patient, having no recollection of running into a culvert, regained consciousness in his wrecked car. He was able to walk home, a distance of one mile. The only apparent residual of this accident was a painful right hand. Six weeks later the patient became speechless suddenly. Thirty minutes later he had a generalized convulsion lasting four hours. Recovery was gradual but apparently complete. Six weeks before admission he again lost his power of speech and his hand symptoms returned. Gradually he became weaker, disoriented and lost his memory for both recent and past events.

Examination.—The patient was a well developed elderly male in a state of semicoma. His eyes reacted sluggishly to light and oscillated slowly in a horizontal plane. His right hand was paralyzed with anesthesia.

Laboratory Examination.—Spinal fluid showed positive globulin and seven cells with normal pressure. Glucose tolerance was impaired. Roentgenogram of skull suggested increased intracranial pressure.

Treatment.—Supportive.

Result.—The patient died suddenly on the fifth hospital day.

Autopsy.—Spongioblastoma multiforme of the left parietal region; pontine hemorrhage with extensive encephalomalacia.

Comment.—The history was indicative of a subarachnoid hemorrhage rather than a brain tumor.

It would seem from an analysis of this material that all of the abnormal mental reactions of older people are not irreversible and, therefore, do not result from irreversible central nervous system pathologic conditions alone. There certainly are other factors and it behooves the profession to search for these other factors and to fit them into their proper places. If and when this is done, the medical profession can take up its leadership in the attack on the problems of old age. When accurate scientific advice can be given, the many mistakes in approaching this problem will be rectified.

CONCLUSIONS

1. The many problems of the aging and old age are primarily medical and can be solved properly only when scientific medicine has assumed its leadership in this problem and has pointed out the correct road to follow.

2. Contrary to the usual assumption, the abnormal mental reactions of old age do not all result from irreversible pathologic changes in the brain and are not all irreversible.

3. A constructive, optimistic diagnostic and therapeutic approach will correct the majority of the mental abnormalities seen in people over 60, the arteriosclerotic age. Present methods have produced sustained remissions of six months or more in one half of a series of 119 patients, and improvements of technic should bring about even better results.

27th and The Paseo.

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The case of a child with generalized peritonitis (inflammation of the membrane lining of the abdominal cavity) and acute appendicitis in whom an operation was inadvisable, whose recovery is attributed to injections of sodium sulfathiazole into the vein and of sulfapyridine directly into the abdominal cavity, is reported in *The Journal of the American Medical Association* for January 24 by Julius Gottesman, M.D., and Harold Goldberg, M.D., New York.

ACUTE APPENDICITIS

PRESENT DAY CONCEPTS OF TREATMENT

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ST. LOUIS

To undertake the presentation of a paper on such a hackneyed and controversial subject as appendicitis takes considerable courage. There are more than 10,000 papers on appendicitis listed by the "Quarterly Cumulative Index Medicus."

According to statistics that were compiled by one of the large life insurance companies a few years ago, there were 17,687 deaths from appendicitis in the United States in one year. This should give one food for thought since these deaths are largely among citizens in the productive years of life and the great majority are preventable. This appalling death rate suggests that physicians are not doing their part in educating the public concerning the early symptoms of appendicitis and the dangers of laxatives. If signs were displayed in drug stores which read "Don't take a laxative for pain in the belly, consult your doctor" the mortality in appendicitis would be reduced considerably. Another factor is the occasional operator who is not qualified to handle the complications that follow a ruptured appendix.

The mortality rate for operations done for acute appendicitis in St. Louis hospitals is about 5½ per cent which is about the average rate or, perhaps, a little better than for the country at large. Here, as elsewhere, there are too many occasional operators and it is probable that if all the operations had been performed by one fourth the number of operators the mortality would have been between 3½ and 4 per cent.

The high mortality rate is due principally to five factors: (1) purgation, (2) procrastination with medical treatment, (3) faulty and inadequate diagnosis, (4) the occasional operator and (5) the inexperienced surgeon. By adequate education of both the public and the profession, there is no reason why the mortality rate for appendicitis should be over 1 per cent.

It may be useful to analyze the classical symptoms of acute appencitis in their usual order of appearance: (1) abdominal pain, with or without nausea, (2) tenderness on pressure over the region of the appendix and (3) protective muscle guard or rigidity. An increase in the leukocyte count is a positive aid in the diagnosis but a low count should not influence one's judgment if the history is otherwise typical. Too many physicians still feel that fever is essential to make a diagnosis of acute appendicitis, but this generally occurs as a later symptom when the disease is no longer localized to the mucous lining of the appendix. The later symptoms, which may be ascribed to the spread of the inflammation itself, are those that are designated as toxic and produce generalized or constitutional symptoms. These are: (1) fever, (2) acceleration of the pulse rate and (3) a rising leukocytosis.

The earliest and most important of the referred manifestations is pain, which is diffuse and generally in the umbilical region. While the pain varies in intensity, it is frequently paroxysmal and colicky at first and generally becomes less severe, but more continuous, after it becomes localized in the right lower quadrant. Frequently contracture of the right ileopsoas muscle intensifies the pain so that the patient is more comfortable with the knees drawn up. After localization the pain is generally in the right iliac fossa but it may be referred to other areas as well, depending on the exact location of the appendix. For example, a retrocecal position may cause pain in the right flank or right lumbar region, while a pelvic position may cause pain low in the abdomen or even in the inguinal region. Muscle guard or rigidity accompanies the onset of pain, being one of the earliest symptoms, and is progressively more marked as the inflammation increases. The most reliable sign of appendiceal inflammation is tenderness on pressure over the location of the appendix. This usually corresponds to a point midway between the umbilicus and the right anterior superior iliac spine, which is designated as McBurney's point. In a mild attack the pain usually subsides in about twenty-four hours. Persistence of the pain suggests that the inflammation has extended through the mucosa to the deeper layers of the appendix. On the other hand, a sudden cessation of pain suggests gangrene or perforation of the wall of the appendix, which will later be followed by a return of the pain as the peritonitis spreads.

The only treatment for simple acute appendicitis is surgical and appendectomy should be performed just as soon as the diagnosis is made. If the patient is dehydrated, administration of fluids parenterally, prior to operation, will improve his condition and render him a better risk for surgery. The only other indication for delayed operation is the presence of a palpable mass, and then a delay of several days will allow the abscess to become well walled off and drainage of the abscess can be done with a minimum risk.

Appendicitis in children progresses much more rapidly than it does in adults, therefore, it is imperative to make the diagnosis early and follow with immediate operation. I have seen the appendix rupture in eight hours after the initial attack of pain in a child 7 years old.

The actual operation for early acute appendicitis is ordinarily a simple and safe surgical procedure which should carry an operative mortality of well under 1 per cent. An adequate incision is essential. Trying to operate through an incision that is too small to allow good exposure will be fraught with

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difficulties and at times damage will be done which may result in a fatality. The incision which I prefer is a fascial splitting incision which I described in The Journal of the Missouri State Medical Association in February 1937. The advantages of this incision are that it can be enlarged either above or below without weakening the incision, the exposure is as adequate as a right rectus incision and the closure is such that it is equally as strong as the muscle splitting McBurney incision.

In dealing with an appendiceal abscess when there is a definite palpable mass, it is never advisable to operate early. The patient is first put on sulfanilamide, is given adequate fluids and sufficient sedation to keep him comfortable. The white blood count is checked at least daily and the temperature is taken every four hours. A delay of from three to five days will allow the abscess to be well walled off and simple incision and drainage can be done with practically no risk. A sudden rise in temperature with a rising leukocyte count is an indication for prompt surgical intervention as the infection is probably spreading. If the appendix can be located easily and removed, this should be done; but if there is any danger of breaking through into the general peritoneal cavity, the appendix should not be touched at that time. It is generally advisable to wait and remove it in about three months after the inflammatory tissue has been absorbed.

Since the highest mortality follows ruptured appendicitis with generalized peritonitis, I feel that a detailed description of the operative procedures will not be amiss. The incision in a case of peritonitis should be of the simplest type that will give adequate exposure. In all cases of diffuse spreading peritonitis the appendix should be removed since it constantly is pouring infection into the peritoneal cavity. The additional time necessary for the removal is negligible as compared with the ultimate result. No effort should be made to invert the stump when peritonitis is present; a simple ligation and sterilization of the stump is all that is indicated. Occasionally when the cecum is indurated when the perforation is just at the base, it may be necessary to resect a portion of the cecum. Extensive sponging and wiping is contraindicated as this tends to produce many raw surfaces on the bowel which increase the chances of ileus and later of mechanical obstruction. As much of the pus in the peritoneal cavity as possible should be removed by careful and gentle use of suction.

One of the most frequent causes of death from peritonitis is ileus, either paralytic or mechanical. In certain cases of perforated appendicitis, it is of great value to perform an ileostomy or cecostomy, especially when generalized peritonitis is present. It is particularly indicated in the cases in which there is induration of the terminal ileum with distention of the gut wall as this procedure will allow escape of much of the toxic fecal material. I prefer an ileostomy to a cecostomy and do not hesitate to use one of the two procedures whenever I find the ileum involved, especially if it contains much fluid. When ileostomy is employed, the enterostomy tube should be pointed upward when it is placed in the small intestine and should be sutured in place after the method of Wetzel. Only soft rubber Penrose drains should be used. One is placed in the pelvis, one in the right lateral gutter, one behind the appendix stump and one behind the omentum pointing toward the midline. In the case of the average adult, eight grams of sulfanilamide powder is placed in two ounces of normal saline and poured around the base of the appendix and in the general peritoneal cavity, and proportionately less in the case of a child.

Some few years ago Dr. Hugh A. Gamble called attention to the fact that a high percentage of the bacteria in the peritoneal fluid are anerobic in character, therefore, it is important to get as much air into the peritoneal cavity as is possible as this will check the growth of the bacteria. By lifting the abdominal walls up away from the viscera considerable air is forced into the abdomen before partial closure of the peritoneum is made. The peritoneum then is closed loosely around the drains and six figures of eight silkworm-gut sutures are placed in such a manner that when they subsequently are tied the fascia will be drawn together. These sutures are not pulled up at the time of operation but are left loose. From two to four grams of sulfanilamide powder are dusted into the wound and the wound is packed wide open with strips of vaseline gauge. The silkworm-gut sutures then are tied loosely over the gauze packing and a large abdominal dressing applied which is held in place by broad strips of adhesive plaster and a binder.

The choice of the anesthetic is by no means to be lightly considered as it depends on the general condition and the age of the patient. In the aged, or in patients with other organic disease who might be endangered by receiving a general anesthetic, spinal anesthesia is by far the anesthetic of choice. In recent years, the use of spinal anesthesia has been found to have a definite therapeutic value in cases of paralytic ileus associated with generalized peritonitis. In all other cases, cyclopropane and ethylene, administered by a competent anesthetist, is the best anesthetic. In children, ether should be employed except in cases that are critical in which local infiltration with novocain usually suffices. Local anesthesia is likewise satisfactory for incision and drainage of localized abscesses and for performing ileostomies in cases of intestinal obstruction.

Upon being returned to his bed, the patient is placed on his abdomen as soon as he has reacted from the anesthetic sufficiently and is kept there as much as possible during the next forty-eight hours as this position affords the best drainage. When he is not on his abdomen, he is kept turned

well to the right side, with the head of the bed elevated, in order to prevent any unnecessary spread of the infection. The first seventy-two hours postoperatively are generally the most important and the fluid intake for an adult patient is maintained by giving intravenously 100 cc. of a 10 per cent solution of glucose in normal saline plus two ampules of Ringer lactate solution every eight hours. Thirty grains of sulfanilamide in 250 cc. of normal saline are given subcutaneously every six hours. If there is any vomiting, a nasal tube with Wagensteen suction is used continuously as long as it is indicated. The patient is allowed small amounts of water by mouth.

Complete blood counts and estimations of the sulfanilamide concentration in the blood are made daily and the blood chemistry is checked frequently. By this method it is usually possible to maintain a sulfanilamide concentration of 8 mg. per cent and there is generally sufficient improvement after from three or four days to begin cutting down on the dosage which usually can be stopped after about a week.

By giving 1 cc. of 1:2000 prostigmine every three hours, the tone of the intestine is maintained and abdominal distention often can be prevented. At times the administration of 100 per cent oxygen with the Boothby mask is also beneficial in keeping the gas to a minimum. Enemas and increased doses of prostigmine are helpful when there is much distention. Blood transfusions are given if there is the slightest indication.

By the third or fifth day the wound is usually ready to be closed and the vaseline gauze is carefully removed, the Penrose drains are shortened and the silkworm-gut sutures are tied sufficiently tight to approximate the fascia and the skin edges. By this time, as a rule, the patient's condition is such that no special treatment is indicated.

With the method of treatment that has been outlined, the mortality rate can be reduced to a minimum. In a small series of twenty-seven consecutive cases of generalized peritonitis resulting from ruptured appendices, there have been no deaths. The ages have varied from 5 years to 75 years and the average stay in the hospital has been twenty-nine days.

422 Beaumont Building.

SULFATHIAZOLE OINTMENT EFFECTIVE FOR IMPETIGO CONTAGIOSA

The average time required to cure 40 patients with impetigo contagiosa, a contagious inflammatory skin disease, by local application of sulfathiazole (a derivative of sulfanilamide) in ointment form was nine and one-half days as compared with from twelve to sixteen days requred with the previous conventional treatment, L. H. Winer, M.D., and E. A. Strakosch, M.D., Minneapolis, report in *The Journal of the American Medical Association* for January 17.

The two physicians explain that among the pus-producing infections of the skin, impetigo contagiosa is the most superficial and also the most common.

THYROIDECTOMY

A STUDY OF 200 CONSECUTIVE CASES

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It is our purpose to report a series of 200 consecutive thyroidectomies performed at St. Mary's Hospital, Kansas City, Missouri, during a period of eight years. Fourteen surgeons were concerned in this operative series. These figures do not include patients admitted to the hospital in whom a diagnosis of hyperthyroidism was established but who did not have surgical therapy. Of the 200 cases subjected to thyroidectomy there were two deaths. One death occurred on the operating table. This case was complicated by coexistent enlarged thymus. The second case, at autopsy, presented occlusion of the right coronary artery. This occlusion evidently occurred seventy-two hours subsequent to surgery.

The weight, age and sex of the 200 cases under consideration are represented in tables 1 and 2.

Table 1. *Weights in 200 Cases*

Sex	Females 157	Males 43
Average weight	109 pounds	146 pounds
Underweight	77 pounds	22 pounds
Overweight	30 pounds	9 pounds
Obese	11 pounds	5 pounds

In this series of cases there were 157 females and 43 males, the incidence being approximately a three to one predominance of females.

Table 2. *Age Groups*

Years ofAge	Number
10 to 19	9
20 to 29	52
30 to 39	55
40 to 49	44
50 to 59	26
60 to 69	12
70 to 79	3

Youngest female, aged 12.
Oldest female, aged 73.

METABOLIC RATE

The metabolic rate was minus in sixty-three cases or 31.5 per cent. This extremely high percentage of cases presenting minus metabolic rates is in part explained by the fact that many of these patients had received iodine and sedation prior to their hospitalization. The controversy as to the significance of basal metabolism in the presence of hyperthyroidism has produced a voluminous literature.

Senior Attending Physician (Dr. Stookey) and Resident in Medicine (Dr. Bay), from the medical service of St. Mary's Hospital, Kansas City, Missouri.

Acknowledgment is made to Sister Mary Clarita for tabulation of the statistics in this report.

The standards of weights as used by the life insurance companies are the method by which the table of weights was determined.

Since these data were accumulated there have been thirty-six thyroidectomies performed without mortality.

Table 3. *Metabolic Rates in 200 Cases Operated Upon*

	Number	Highest	Lowest	Average
Metabolic rate, plus	137	plus 62		plus 20.3
Metabolic rate, minus	63		minus 24	minus 8.5

We believe that in the vast majority of cases the metabolic rate is perhaps an active index of the behavior of functional activity of the gland. However, in this series there were several patients in whom thyroid disease had been suspected and metabolic rates determined in many different hospitals over a period of as long as three years, always with minus results.

The correlation of the metabolic rate and the histologic pathologic condition of the excised gland is, in our judgment, impossible. From our limited experience, we believe it is possible in chronic nodular goiter to have definite thyroid dysfunction in the presence of a minus metabolic rate. This observation has been illustrated dramatically by several clinical cases contained in this series.

MIXED CASES

One of the perplexing diagnostic problems that presents itself in so-called mixed cases is the evidence of thyroid dysfunction associated with obesity. In this series of 200 cases it occurred sixteen times. These patients were obese, frequently presented a coarse skin and a tendency to pit on pressure associated with tachycardia tremor and all the classic symptoms of hyperthyroidism. In this series there was one particular case of outstanding interest which was admitted to the hospital for diarrhea associated with tachycardia, persisting on numerous occasions over a period of sixteen years. Anginal pain was present at the time of operation. The therapeutic response to thyroidectomy was excellent. The patient resumed her normal activities.

The postoperative course of these patients is interesting in that they show little tendency to gain weight subsequent to thyroidectomy and most patients are extremely susceptible to the subsequent administration of thyroid extract.

The literature contains scanty reference to the significance of the blood findings in the presence of thyroid disease. The American literature almost

Table 4. *Blood Findings in 200 Cases Operated Upon*

80 females with red blood cells above 4,500,000
21 males with red blood cells above 5,000,000
1 female with hemoglobin above 90 per cent
8 males with hemoglobin above 90 per cent

universally states that there is a relative increase in the lymphocytic elements of the blood and that the blood contains no other significant findings. It has been our observation that a patient suffering from hyperthyroidism frequently presents an increase in the red cells, the increase in the red cell count generally being in excess of the increase of hemoglobin. It is true that a hyperthyroid individual suffering from some concurrent disease frequently will present the extreme degree of secondary anemia. However, in more than 50 per cent of the cases, the count of the red blood cells will approach normal or slightly above. This is emphasized frequently in the English literature.

Cholesterol determinations were done routinely on all patients and an attempt to evaluate the cholesterol in association with the clinical findings and the metabolic rate was such that, in our opinion, the cholesterol determination was of but little clinical value and it is omitted from this report.

EYEBROWS

It is an accepted teaching that thinning of the outer third of the eyebrows is present in a considerable percentage of patients suffering from hyperthyroidism. This is considered one of the early physical findings. For the last five years we have studied the eyebrows of all patients that have come under our observation. It is our finding that thinning of the outer third of the eyebrow is perhaps twice as frequent in individuals suffering from thyroid dysfunction as in normal individuals. Thinning of the outer third of the eyebrows occurs in both sexes, at any decade of life, in men and women who are free from all evidence of glandular dysfunction.

ALLERGY

Many patients suffering from thyroid dysfunction present coexisting symptoms of hyperactivity of the vegetative nervous system that are frequently interpreted as manifestations of allergy. The dermographia, which is perhaps one of the most consistent findings in hyperthyroidism, plus extreme sensitivity of the mucous membranes, associated with the irritability and frequent intermittent attacks of diarrhea that represent the irritable colon of hyperthyroidism, are easily mistaken for some obscure manifestation of allergy.

WATER SUPPLY

The relationship between certain geographic areas and the associated scarcity of iodine, particularly that contained in the water supply, is so well established that the goiter of adolescence is now looked upon by most clinicians as a deficiency disease. The colloid goiter is an expression of overactivity upon the part of the cells in the thyroid gland to compensate for the deficiency of iodine in the intake. All agree that this does not explain all factors but the statement is generally accepted as basic while, at the same time, it is recognized that other factors, such as constitutional background, are secondary contributing factors.

In our series of cases we have been impressed by the frequency of goiters in individuals who before puberty obtained their drinking water from cisterns. Our records and histories are inadequate

on this important observation and we hope that in the report of the next one hundred thyroidectomies to have some definite information as to the use of cistern water, cistern water being, of course, the practical equivalent of distilled or snow water. There were several interesting families in this group in which goiter was present in at least half of the children born of families who utilized cistern water for drinking purposes.

BACKGROUND

The background of many of these individuals suffering from thyroid dysfunction is one of maladjustment, mental conflict and maladaptation. These psychopathic factors persist subsequent to thyroidectomy and make the prognosis difficult to evaluate. In our opinion it is wise not to be too optimistic as to the results to be obtained by thyroidectomy, particularly in chronic nodular goiter.

ANOMALIES OF PIGMENTATION

Anomalies of pigmentation are encountered frequently in thyroid dysfunction. The anomaly most frequently encountered is hyperpigmentation over the lateral sides of the neck corresponding to the distribution of the ribbon muscles. In the area directly over the thyroid gland there is frequently a complete lack of pigmentation. This sign is encountered frequently and need not mean that the gland is overactive at that time; but it is an indication that at some time there has been a glandular dysfunction.

Erythema in the neck, reaching its maximum of distribution over the gland, is, as a rule, evidence of hyperactivity. The distribution of erythema and its intensity are at time striking. Most of these cases subjected to thyroidectomy were studied jointly by the medical and surgical services of the hospital.

These findings would indicate that with careful selection of cases, and adequate surgical preparation, that thyroidectomy as a therapeutic procedure is associated with a low mortality.

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CHOKING ON FOOD CAN BE SERIOUS AND SOMETIMES FATAL

Choking on food can be serious and sometimes fatal, *Hygeia. The Health Magazine* says in answer to an inquiry. The greatest danger is that of suffocation from a large mass that may stick in the region of the vocal cords and cut off the air supply. The choking person should be placed face down and given as much breathing space as possible. Constricting collars or bands about the neck should be removed and an effort made to get the patient to the hospital as quickly as possible. It is of little value for the ordinary bystander to attempt extraction of any mass with the fingers or simple instruments that may be at hand. No attempt should be made to force the person to swallow water or other liquids. If the patient survives long enough to be taken where expert attention is available, successful removal of the foreign material is usually possible, *Hygeia* declares.

THE EFFECT OF MINERAL WATER ON KIDNEY FUNCTION TESTS

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The use of various spring and mineral waters in the healing of the sick[1] is as old as mankind and probably antedates by many centuries the use of other forms of therapy. It has been said that the ancients, when they found a spring giving forth palatable water, would use it as a source of drinking water, but when the spring water had an unpleasant taste it was used as a medicine.

Progress has been made beyond this point but there is still considerable confusion as to the value, if any, of mineral water in the treatment of the sick. This confusion no doubt is due to the inability of the physician to place his finger on the exact reason why mineral water, as such, should be beneficial to the patient. It is reasonable to believe that a change of climate, diet and rest would do much for the sick patient, and some believe that this accounts for all the benefits that are obtained at health spas. But it is difficult to agree with this when one considers that the same results cannot be obtained at other places where rest and diet as well as freedom from worry may be just as complete but where the mineral water is lacking. Also the use of mineral water far distant from the spring is efficacious in some instances.

The modern use of analytic chemistry has shown that many of the mineral springs which have won renown as therapeutic springs actually have chemicals in the water in sufficient concentration to be of therapeutic value; others have chemicals of proven value but in concentrations which seem too small to be effective as drugs, and their efficacy frequently is attributed to catalytic action[2] which enhances the value of the chemicals present and makes them effective. This theory is difficult to prove but is not unheard of. There is a tendency today to believe that vitamins also function best in combination. In any event it would seem that more thought could be given to the mineral spas of this country by the physician. Fantus[3] made such a plea and with good reason.

The evaluation of the effects of mineral water is extremely difficult and requires careful and unprejudiced effort. One has to overcome the indifference which has resulted from the ridicule that the medical profession, for the most part, has thought fit to heap upon the spas and watering places. Also, one must have an approach to the problem which is objective—if that is possible. Too much of the research in the past has been done using the subjective approach.

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In reviewing the literature on this subject, both in this country and from abroad, it is surprising to note how much of it is based on theory and on a few case reports. Even the use of clinical controls is rare. Indeed it is possible that such controls are difficult or impossible to obtain and the value of the work is materially lessened by the lack of such controls.

PROCEDURE

Having become interested in this problem it was decided to attempt to evaluate a particular mineral water in its effect on kidney function. Tap water was used as the control and the analysis of the tap water is given in table 1. The mineral water used

Table 1. *Tap Water*

	Part Per Million
Silica (SiO_2)	10.3
Insoluble	0.3
Iron and Aluminum Oxides (Fe_2O_3 and Al_2O_3)	0.7
Calcium (Ca)	20.0
Magnesium (Mg)	15.3
Sodium and Potassium (Na and K)	46.8
Bicarbonate (HCO_3)	40.3
Carbonate (CO_3)	16.8
Sulfate (SO_4)	106.1
Chloride (Cl)	27.0
Nitrate (No_3)	5.3
Turbidity	0.12
Alkalinity	14-61
Non-carbonate hardness	52
Total hardness	113

had the composition given in table 2.* This water is a palatable, slightly alkaline water of surprisingly constant composition. In a few cases distilled water was also given and the results will be commented on later.

No attempt was made to select the patients and no particular disease was used to the exclusion of

Table 2. *Mineral Water*

	Part Per Million
Calcium (Ca)	69.68
Manganese (Mn)	Trace
Iron (Fe)	0.27
Magnesium (Mg)	10.56
Sodium (Na)	2.88
Potassium (K)	1.13
Lithium (Li)	Trace
Silica (SiO_2)	12.08
Aluminum (Al)	0.70
Ammonium (NH_4)	less than 0.05
Bicarbonate ion (HCO_3)	238.05
Carbonate ion (CO_3)	6.99
Sulphate ion (SO_4)	9.72
Chloride ion (Cl)	6.38
Bromide ion (Br)	Trace
Iodide ion (I)	Trace
Nitrate ion (NO_3)	0.88
Nitrite ion (NO_2)	Trace
Phosphate ion (PO_4)	0.25

others. Each patient was considered with a view to answering two questions: first, would he remain in the hospital long enough to allow the experiment to be completed and, secondly, could he cooperate well enough to consume the required amount of water and to allow the tests to be carried out? If these two questions were answered in the affirmative the patient was used.

The patient was started on one or the other of the waters, neither the patient nor the laboratory personnel being aware of which water was being administered. The water was placed in a vacuum carafe so that it would be kept at a constant temperature. The carafe was filled two or three times daily with a measured amount of the water. The intake was usually placed at two liters a day although some patients were given three liters a day. Whatever the amount, the same amount was given of each of the waters used. Each water was administered for four days. The kidney function tests were made on the fourth day. The phenolsulphonphthalein test was made in the morning and the urea clearance test was carried out in the afternoon.

The urea clearance test was made by the method of Van Slyke.[4] The urea clearance was calculated on the basis of maximum or standard clearance as indicated by the amount of urine the patient would pass per minute and the per cent of normal was then calculated so that the tables record the urea clearance of the patient as the percentage of normal clearance.

The phenolsulphonphthalein test[5] was done as follows: The patient was given 250 cc. of the water being studied and in ten minutes was asked to empty the bladder. He was then given 6 mg. of the phenolsulphonphthalein intramuscularly. The first specimen was collected in exactly one hour and ten minutes and the second specimen was secured an hour later. The alkalinization and dilution were then done and the test read in a photoelectric colorimeter (Sheard and Sanford).

In five cases the tests, using the various waters, were repeated after allowing the patient to consume his regular quantities of tap water for a week. The second series of tests agreed remarkably well with the first series.

RESULTS

Table 3 shows data on those patients whose urea clearance was 50 per cent of normal or better and therefore may be considered for our purpose as having normal kidney function. There were sixteen such patients and of the sixteen, twelve, or 75 per cent, showed an increased ability to clear urea after four days on the mineral water, whereas four, or 25 per cent, showed a definite decrease in their ability to clear urea.

Table 4 concerns nine patients whose urea clearance on tap water was less than 50 per cent of normal and therefore they may be considered as having abnormal kidney function. Seven of the nine cases, or 77.8 per cent, showed an increased ability to clear urea after using the mineral water, while 22.2 per cent showed a decreased ability to clear urea.

Table 5 is based on twenty-four tests done on twenty-one patients in whom the total output of

*Mineral water was supplied through the courtesy of the Mountain Valley Water Co.

Table 3. *Urea Clearance Tests*

Patient	Diagnosis	Tap Water Formulae	Tap Water Per Cent of Normal	Mineral Water Formulae	Mineral Water Per Cent of Normal
B. Mc.	Rheumatoid arthritis	Cs.	97.3	Cs.	62.4
M. A.	Duodenal ulcer	Cs.	85.3	Cs.	63.0
N. W.	Pneumonia (convalesence)	Cs.	73.6	Cs.	56.2
D. P.	Diabetes mellitus	Cm.	112.0	Cm.	61.2
J. H.	Cardio-vascular renal disease	Cs.	57.5	Cs.	65.5
M. Ki.	Menopause	Cm.	89.5	Cm.	89.9
F. K.	Lymphoblastoma	Cs.	36.0	Cs.	48.9
D. E.	Pernicious anemia	Cs.	53.2	Cs.	56.2
R. B.	Rheumatoid arthritis	Cs.	88.8	Cs.	140.6
M. K.	Menopause	Cs.	79.4	Cs.	83.0
A. Z.	Tularemia	Cs.	93.0	Cs.	95.0
O. P.	Pneumothorax (spontaneous)	Cs.	75.0	Cs.	79.0
P. P.	Chirrosis of liver	Cs.	97.8	Cm.	107.5
E. B.	Pneumothorax (spontaneous)	Cs.	104.5	Cm.	120.8
H. Mc.	Rheumatic fever	Cs.	70.5	Cm.	104.6
Mr. Kr.	Menopause	Cs.	79.4	Cs.	79.6

phenolsulphonphthalein was less than 50 per cent, and therefore abnormal. The use of the mineral water improved the phenolsulphonphthalein excretion in twenty-one tests or a percentage of 87.5 of the total. In only three of the cases was the phenolsulphonphthalein excretion lower after the mineral water than it was with tap water; thus in only 12.5 per cent was the output of the dye diminished.

Table 6 is based on fifteen tests on thirteen patients in whom the phenolsulphonphthalein test with tap water was above 50 per cent and therefore normal. When the mineral water was used the output of the dye was increased in 80 per cent of the cases and diminished in 20 per cent.

DISCUSSION

It is at once apparent that the use of the mineral water increased the output of both dye and urea in about the same percentage of cases, whether these cases showed evidence of diminished kidney function or not. It also should be emphasized that the improvement of kidney function was maintained while the patient was on the mineral water but returned to its original level when the mineral water was discontinued. When the use of the mineral water was resumed there was again an increase in the dye and urea clearance. It has been our experience

Table 4. *Urea Clearance Tests*

Patient	Diagnosis	Tap Water Formulae	Tap Water Per Cent of Normal	Mineral Water Formulae	Mineral Water Per Cent of Normal
H. S.	Gout	Cm.	14.2	Cm.	12
J. D.	Nephrotic syndrome	Cs.	37.5	Cs.	59
J. B.	Lung abscess	Cs.	40.7	Cs.	60.9
M. P.	Asthma	Cs.	27.2	Cm.	66.1
J. De.	Asthma	Cs.	27.6	Cs.	88.6
J. L.	Arteriosclerosis renal disease	Cs.	36.0	Cs.	37.2
My. K.	Hypertension	Cm.	33.9	Cs.	89.1
V. P.	Nephrotic syndrome	Cm.	38.0	Cs.	56.3
L. S.	Neurosis	Cs.	40.7	Cs.	47.5

Table 5. *Phenolsulphonphthalein Test*

Patient	Diagnosis	Tap Water 1 hr.	Tap Water 2 hrs.	Tap Water Total	Mineral Water 1 hr.	Mineral Water 2 hrs.	Mineral Water Total
M. K.	Hypertension	18	20	38	15	8	23
W. C.	Lung abscess	20	25	45	17	13	30
M. Z.	Cellulitis	35	15	50	32	20	52
J. J.	Rheumatoid arthritis	10	5	15	10	15	25
M. G.	Arteriosclerosis	25	23	48	30	18	48
W. K.	Injury	22	15	37	23	16	39
L. D.	Bronchitis	23	15	38	30	18	48
A. Z.	Tularemia*	20	15	35	55	18	73
A. Z.	Tularemia	32	13	45	43	25	68
B. Mc.	Rheumatoid arthritis*	35	15	50	50	15	65
B. Mc.	Rheumatoid arthritis	35	25	60	54	19	73
R. B.	Rheumatoid arthritis*	23	15	38	23	18	41
R. B.	Rheumatoid arthritis	16	13	29	47	20	67
J. L.	Arteriosclerosis*	19	10	29	10	26	36
F. K.	Lympho-blastoma*	21	27	48	22	45	67
M. Z.	Tularemia	17	26	43	32	14	46
My. K.	Hypertension*	34	10	44	27	20	47
V. P.	Nephrotic syndrome*	5	20	25	15	30	45
E. B.	Pneumothorax (spontaneous)*	30	20	50	43	22	65
J. D.	Nephrotic syndrome*	11	4	15	20	23	43
N. W.	Pneumonia (recovering)*	17	18	35	22	17	39
J. B.	Lung abscess*	11	11	22	36	31	67
M. P.	Asthma*	6	20	26	16	32	48
H. S.	Gout and nephritis*	16	14	30	27	16	43

*Patients also had urea clearance tests (see tables 3 and 4).

that this increased ability to excrete takes place rapidly so that after only a day or two on the mineral water the change can be noted. It is also worthy of note that these changes do not continue to increase. The amount of improvement in excretion noted after three or four days is very likely to be the same as after two or three weeks.

The explanation is not at all clear but it appears to be a mechanical rather than a true therapeutic mechanism since the change occurs so promptly that actual healing or tissue change scarcely could take place. What these mechanical changes are is difficult to say and there is not sufficient evidence from this study to come to any conclusion.

That the mineral water used increases the ability of the kidney to excrete is manifested further by a study which we have made on a patient with

Table 6. *Phenolsulphonphthalein Test*

Patient	Diagnosis	Tap Water 1 hr.	Tap Water 2 hrs.	Tap Water Total	Mineral Water 1 hr.	Mineral Water 2 hrs.	Mineral Water Total
J. F.	Arterio-sclerosis	29	27	56	30	21	51
L. S.	Neurosis*	32	22	54	35	15	50
E. Mc.	Rheumatic fever*	52	19	71	44	26	70
M. M.	Hypertension	25	26	51	26	32	58
C. H.	Hypopara-thyroid	15	45	60	50	18	68
M. A.	Duodenal ulcer*	40	18	58	38	22	60
M. A.	Duodenal ulcer	38	20	58	37	23	60
M. K.	Menopause*	32	26	58	37	23	60
M. K.	Menopause	21	26	47	24	24	48
G. F.	Tuberculosis	36	24	60	37	39	76
H. H.	Pericarditis	35	28	63	47	21	68
D. E.	Pernicious anemia*	35	25	60	47	19	66
P. Pa.	Chirrosis of liver	36	30	66	55	12	67
D. P.	Diabetes*	43	25	68	45	40	85
J. H.	Cardiovascular renal disease*	39	19	58	46	17	63

*Patients also had urea clearance tests (see tables 3 and 4).

severe gout and a resulting severe nephritis. This patient when on tap water can excrete only an insignificant amount of uric acid in the urine, but when placed on the mineral water he excretes from three to five times his usual quantity. The blood uric acid remains essentially the same regardless of the type of water he may be ingesting. This improvement in ability to excrete uric acid has been shown to take place on at least three different occasions when the patient has been changed from tap water to the mineral water.

It might be suggested that diuresis would account for the improvement in the ability of the kidney to excrete. This, of course, is a factor and there actually is a mild diuresis noted in some cases when the mineral water is used, but this is never marked and in itself indicates an improvement in the ability of the kidneys to excrete since the fluid intake remains constant in these patients regardless of the kind of water being ingested.

In a small number of cases studied distilled water was used as a second control. Results with this water were erratic but on the whole it was noted that when using distilled water as the test water the phenolsulphonphthalein excretion was greater than when tap water was used, but was less than the excretion obtained when the mineral water was used. When the distilled water was used, the clearance of urea was less than with either tap water or the mineral water.

CONCLUSIONS

It was shown by our studies that the use of the mildly, alkaline noncarbonated, natural mineral water as a source of fluids for the human being would result in an increased excretion of both injected dye (phenolsulphonphthalein) and of urea. In a case of severe gout the uric acid content of the urine also was increased consistently.

It was found that the mineral water was well tolerated by the patients and could be taken easily in the quantities prescribed.

Distilled water was less palatable to the patient and did not seem to have the capacity for increasing the excretion of the dye and urea that was noted when the mineral water was used.

The composition of mineral waters varies so widely in different localities that it is felt that this study cannot be taken to apply to all mineral waters without specific determinations to tell whether or not they possess the ability to improve excretion.

Lastly, the effectiveness of a mineral water in improving the kidneys ability to excrete certain substances cannot be taken as evidence per se that such a water necessarily has therapeutic properties. At best one can say only that such possibilities are suggested and that further work of an objective nature is indicated and desirable.

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STAG-HORN CALCULUS REMOVAL BY V-SHAPED NEPHROTOMY

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Many branched calculi are called "silent" stones when they cause no pain. However, they certainly are not innocent or inactive. There is an insidious destruction of kidney parenchyma with progressive loss of function. This becomes more serious should infection supervene. Therefore, it seems most plausible to remove such a stone before the inception of these complications. This opinion is not often accepted, especially when the patient feels well.

Nephrectomy for stag-horn calculus should be done only as a last resort. Many kidneys have been removed needlessly because of moderate pyelectasis and absence of kidney function. It is gratifying how such a pelvis may contract and renal secretion return. Again, the usual method of bisecting the kidney has been used cautiously for fear of hemorrhage and of eventual renal destruction. The use of the V-shaped nephrotomy with direct roentgenographic control during operation offers the best possibility of saving the kidney.

There are several important operative considerations in nephrolithotomy. There must be adequate exposure of the kidney, control of renal bleeding, proper incision in the kidney and complete extraction of the stone.

The adequate exposure of the kidney entails proper lumbar incision. The costovertebral ligament may require severing and it may be necessary that the twelfth rib be divided and mobilized. The pedicle is cleaned of excess tissue to permit accurate and controllable compression of the renal vessels. The liberated kidney is elevated into the incision by a sling of narrow tape under each end.

Complete control of renal bleeding during operation is imperative. The renal circulation can be interrupted admirably by the use of a clamp which will be described. This is necessary for the roentgenographic checking during operation, to avoid unnecessary loss of blood and for meticulous technic.

The renal circulation may be controlled by compressing the pedicle between the fingers. This is not convenient because it interferes with the roentgenographing of the kidney during operation, the

hand occupies important space, the fingers may become tired or may inadvertently slip off. A slip-knot of catgut, tape or catheter may be used about the pedicle. This, also, is not acceptable because the noose may be difficult to adjust at will. An important structure may be torn in attempting either to fix or loosen the knot.

The best technic for hemostasis is the use of a rubber covered, medium sized, Doyen, curved intestinal clamp. The ends of the blades should curve slightly inward to approximate before the center. This permits better control of pressure on the pedicle and prevents slipping of the clamp. The clamp is placed around the pedicle carefully by following the fingers of the other hand. The blades are approximated gently and may be tightened just enough to stop the blood flow. This degree of tenseness does not harm the intima and practically never results in thrombosis. The handles can be loosened at will to permit flow of blood through the kidney and then easily tightened. The kidney may be bloodless for intervals as long as eight minutes without resulting in permanent damage. During incision in the kidney, extraction of the stone or during the roentgen ray procedure, the duration of hemostasis may be timed by an assistant. The blades can be loosened every seven to eight minutes to restore circulation for several seconds and then closed again. This technic has given excellent results and is a decided improvement over the other methods of hemostasis. Accurate and meticulous placing of sutures can be done in the bloodless field.

The proper incision in the kidney is determined by the shape and location of the stone. When the ends of the branched stone permit, the calculus may be extracted through a pyelotomy. This is greatly facilitated when the pelvis is large and extrarenal. Sometimes the pyelotomy can be enlarged by gentle centrifugal retraction of the overlying kidney edge. When there is a bulbous stone end in a calyx with a narrow infundibulum, the neck can be broken. The large fragment may be extracted through the pelvis while the peripheral portion may be pressed digitally against the convex kidney border and removed through an overlying incision.

A large stag-horn calculus commonly is removed by extensively bisecting the convex edge along the "bloodless line." This is a formidable procedure. There is a severance of too many vessels and much trauma. This may cause alarming hemorrhage during and after operation. The ensuing destruction and fibrosis of renal parenchyma may eventuate a useless or infected kidney. These criticisms may be obviated by the use of the V-shaped incision on the posterior aspect of the kidney.

The renal artery enters the kidney hilum anterior to the pelvis. It quickly branches into radially directed interlobar arteries which terminate in fine arches. The veins follow a similar radial or spoke wheel course. There often is a retropelvic artery or an aberrant branch to a pole. The bisection of the kidney like a bun severs practically all the terminal vessels in the cortex. This trauma facilitates infection and may result eventually in a fibrosis and destruction of kidney parenchyma. However, the V incision minimizes these difficulties. With the apex in the pelvis, each limb of the incision respectively extends radially over the main calices on a line marking the upper and middle third of the kidney and the middle and lower third. The large extremities of the stone thus are exposed and permit extraction with a minimum of trauma and manipulation. These incisions follow the radial direction of the large artery branches and result in the minimal severance of vessels. The incision may be made by knife or by a large, curved blunt needle carrying a thread or silver wire to cut through the kidney. The apex of the flap can be elevated by a small hook or by a suture to permit easy extraction of the intact stone. The calices often may be inspected nicely with the use of a cameron or curvlite. The opening permits digital investigation and thorough irrigation. A syringe and curved needle and a strong suction tip are used for irrigation. Heretofore, the surgeon now considered his work well done and closed the wound. Follow-up plates would be taken several weeks later and might show residual stones of embarrassing proportions.

The direct roentgenographic control during operation is performed in this fashion: The ureter is retracted and gently tied with a small string. The renal pedicle clamp is applied and timed to give hemostasis for intervals of eight minutes. The

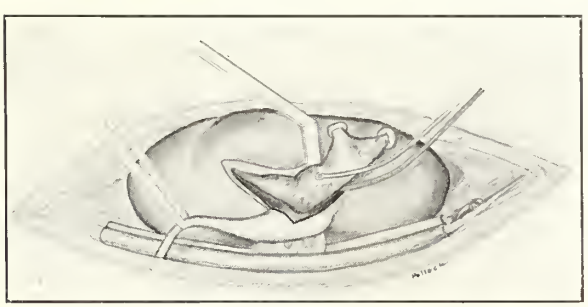


Fig. 1. V shaped incision on posterior aspect of kidney. Pedicle clamp tightened. Stag-born calculus is being extracted.

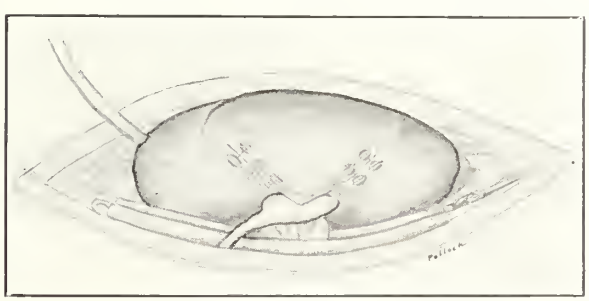


Fig. 2. V-shaped incision closed with fat buttressed mattress sutures. Nephrostomy tube placed through lower pole of kidney into the dependent calyx.

kidney is elevated gently as much as possible into the wound by its tape sling. The instrument tables are arranged so that a portable shock proof roentgen ray machine may be brought into position quickly. A film, measuring 3¾ by 4¾ inches, is placed in a cardboard holder which has leadfoil on one side and black paper on the other. This is dropped carefully by the technician into a thin sterile rubber envelope held by the scrub nurse. The long rubber flap is folded around several times to prevent possibility of wound infection. The plate is held close against the back of the kidney with the paper side next to it. As localization markers for any residual fragment, several long straight needles are placed deep along with the convex border. The one through the lower pole is inserted with the eye inward. All instruments are removed from the wound except the tightened pedicle clamp. The roentgen ray machine is brought quickly into the predetermined position and the exposure made. The film bag is then given to the technician who develops it in a portable or nearby dark room. The pedicle clamp is loosened every six to eight minutes. The recheck plate can be repeated until it is seen that all fragments have been removed by forceps or irrigation.

Sometimes small or soft calcareous fragments may be found even though not visible on the roentgen ray plate. The technic is especially important in localizing stones that cannot be palpated and in recognizing smaller stones which have been overshadowed by a larger stone.

The ureteropelvic junction and upper ureter then are inspected for any abnormality. A large ureteral catheter is passed down to the bladder to insure patency of the ureter. If there is ureteropelvic obstruction or marked pyelectasis, the proper plastic operation may be performed when infection, if present, is not too marked. The results of the procedure can be expected to be about as good as if no stone had been present.

A large nephrotomy tube is placed through the lower calyx out through the lower end of the incision. This offers an exit for the postoperative bleeding. A clot of blood may occlude the ureter and back pressure will disrupt the kidney suture line. In the presence of infection, the various irrigants may later be used such as ¼ per cent phosphoric acid, boric, sulfanilamide or sulfathiazole solutions. Under this regime, moderate dilatation of the renal cavity most often contracts to almost normal dimensions. A nephrectomy for calculus is not necessary in view of the surprising return in function and reduction of pyelectasis after the above technic. When the infection persists and the urine remains alkaline in spite of the use of phosphoric and sulfonamide irrigation, the nephrostomy tube should be left in situ for several months, or longer, to prevent recurrence of stone or infection.

There are extreme instances when nephrectomy for stone may be necessary as a last resort. Conservative measures should be attempted first. This is especially pertinent when the opposite kidney has infection or stone.



Fig. 3. (A) Large stag-horn calculus in right kidney. No retrograde diotrast entered pelvis because of firm impaction of stone. No urinary excretion on right side; left side had mild pyuria. (B) Retrograde pyelogram one and one half years after removal of 14 gram stone, the limbs of which measured 5 and 4 cm. The calices have contracted and there is good urinary secretion. Only slight bilateral pyuria present.

BOSTON MEDICAL

SUMMARY

For the removal of large stag-horn calculi, a V-shaped pyelolithotomy incision in the posterior surface of the kidney permits a minimum of trauma and renal destruction.

A curved Doyen intestinal clamp is used on the pedicle to insure hemostasis for intervals as long as from six to eight minutes.

A sterile roentgen ray plate placed in the wound next to the kidney permits recognition and localization of any residual fragment.

This incision is easier to suture than is the bisection nephrotomy. It has less hemorrhage and less probability of infarct. A nephrostomy tube insures better suture line healing and permits irrigation of the kidney.

1314 Bryant Building.

SAYS REDUCING ACCIDENT TOLL IN HOME SHOULD BE PART OF OUR WAR EFFORT

"In one year home accidents have killed 33,000 persons, caused 4,850,000 disabling accidents—of which 140,000 resulted in permanent disability—and cost many millions of dollars," R. L. Lee, Long Beach, Calif., declares in *Hygeia, The Health Magazine* for February. "In five years these accidental deaths have totaled 167,000, with injuries and property losses mounting accordingly. In our ardor for national defense against foreign foes, this grisly home accident toll should not be overlooked or given only sporadic attention. . . .

"An analysis of home accidents shows that they are often easily prevented by a little intelligent care. . . ."

Children, the author explains, are frequently the victims of home accidents. They set fire to their clothing by playing with matches when they are accessible, by turning up gas burners and by pulling over lamps. They should not be, but sometimes are, allowed to play in front of unscreened fireplaces. . . .

"An orderly house may not be proof against accidents, but it offers far fewer hazards than the disorderly one and tends to develop careful and systematic habits in its occupants. . . ."

VESICAL NECK OBSTRUCTION

RESULT OF TWELVE YEARS STUDY OF CASES ENCOUNTERED IN A COUNTRY PRACTICE

GEORGE W. GAY, M.D.
IRONTON, MO.

During the last twelve years while struggling with the variety of conditions encountered in an active country practice, my attention was drawn early and forcefully to the problem of vesical neck obstruction and its many complications. I was astonished when first entering a general country practice at the number of older patients who carried a residual in the bladder and a catheter in the hat band. An attempt to place these patients under the care of specialists met with the problem of ward beds tied up for a long period of time and, as most of them could ill afford the attending expense of hospitalization and operation, every attempt was directed toward caring for them without hospitalization.

Continuous catheter drainage in most cases has been carried out in the home, the patient reporting to my office daily for observation, irrigation, blood pressure readings and blood chemistry findings. These patients, after preliminary drainage, were then admitted to the hospital for operation as available space occurred. During the first years all cases were operated on by the suprapubic route, the two stage operation being employed. This was satisfactory and reduced the mortality rate to a minimum, but the problem of prolonged hospitalization became an acute one so in 1935 suitable cases were operated on by the perineal route. This altered technic reduced their hospital stay materially and made it possible to care for many more patients. The suprapubic operation was continued in cases with small obstructive growths and in cases complicated by stones, and the perineal operation for all others until 1937 when the use of the resectoscope further simplified the problem by shortening the stay in the hospital; its advent, however, does not in any way lessen the preoperative preparation and it definitely increases the responsibility of selection.

Careful selection and classification of my cases has revealed that of all obstructions occurring in the male proximal to the external sphincter, 65 per cent have been due to prostate enlargement of one type or another. An additional 8 per cent was caused by carcinoma of the gland. The remainder was made up of obstructions caused by the formation of contractions or median bars, infections of the gland and calculi of the bladder and prostate. In considering the most important and largest group in this classification, namely, the benign hypertrophies of the prostate gland, I have attempted always to classify them carefully and to employ the treatment in each case that such classification dictated.

The many lobed structure of the prostate permits a variety of enlargements which may occur singly or variously combined, the most common types being occasioned by an enlargement of the two lateral lobes. The posterior commissural hypertrophy, in my experience, never occurs entirely alone. I have found it always to be associated with a certain degree of enlargement of the lateral lobes. The anterior commissural hypertrophy has not presented itself at any time in my series of cases but the subcervical enlargement first described by Albarran has been encountered in various degrees.

Lateral lobe enlargement as a rule occurs symmetrically, although assymmetrical enlargements do occur. This type of hypertrophy first encroaches on the urethra causing a partial obstruction; later, as growth increases its size, herniation into the bladder through the sphincter occurs and the obstruction becomes more complete.

This type, when examined cystoscopically, will show the presence of two lobes extending into and partially obstructing the lumen of the urethra but leaving a small cleft through which water can pass. There is a definite increase in the length of the retro-montane urethra. So long as the prostate is intraurethral the vesical neck will remain rounded but, as the lateral lobes elongate and impinge on the vesical neck, one finds in this structure an inverted "V." The degree of the acuity of this "V" plus the elongation of the retro-montane urethra are the diagnostic features of importance in this type of examination.

These patients early develop difficulties of urination consisting of a small stream, poor control at the end of urination, difficulty in starting and, later, they develop a small residual of one or two ounces. These symptoms continue and become aggravated as further growth of the gland results in herniation of the lobes through the internal sphincter converting a simple intra-urethral growth into an intravesical growth. With this the symptoms definitely become increased, the residual increases and becomes infected, edema and inflammatory changes present themselves so that the previously reduced channel becomes further obstructed. Hemorrhage often occurs in this type at this time and nocturia and frequency become extremely aggravated, often terminating in complete retention.

Treatment in this type of case, of course, is enucleation of the adenoma in the large intravesical types, the smaller intra-urethral lobes being suitable for resection. It has, however, been my practice to enucleate all glands presenting elongation of the retro-montane urethra and the inverted "V." Fortunately, hemorrhage occurs early in these cases, bringing many patients under the physician's care at an early stage.

The posterior commissural hypertrophy comes from glandular tissue which has its origin below the trigonal muscle and of necessity carries the muscle upward with it during its growth. This type of enlargement interferes with the function of the trigonal muscle and creates one of the most obstruc-

tive types of prostatic enlargement. It occurs individually or often in combination with hypertrophy of the lateral lobes. During its growth, which is slow and progressive, the trigonal muscle and the detrusor muscle become definitely hypertrophied, the bladder walls become thickened and trabeculated, nature in this way doing all that it can to overcome the obstruction present.

The cystoscopic features of this type of obstruction are elongation of the retro-montane urethra, absence of the "V" formation and the presence of a broad flat elevation of the entire area presenting immediately within the vesical neck. This history generally indicates the presence of a long standing, slowly progressive obstruction with final complete or partially complete retention.

The posterior commissural hypertrophy in combination with lateral lobe hypertrophy forms the most obstructive type of prostatic enlargement known. Originally this type of obstruction was treated by suprapubic operation with complete enucleation of the gland. Later, perineal prostatectomy was found to be the operation of choice. Since 1937, however, a number of these cases have been subjected to resection of the large mass of prostatic tissue composing the posterior commissure in spite of the fact that the anatomic considerations definitely contraindicated such a step. The prolonged hospital stay and the tremendous expense associated with this operation have necessitated such action. Many of the cases encountered in this series have been ward patients who were admitted on a charity basis and necessity compelled the following of a procedure that reduced their hospital stay to a minimum. As a result several cases so treated have required secondary resections.

The superficial or subcervical lobe of Albarran is rarely encountered. It does, however, occur and at times presents obstructive features. This lobe arises beneath the mucous membrane of the posterior urethra and, as it increases in size, herniates through into the bladder. The cystoscopic examination shows the presence and the origin of this type of growth. A channel occurs on either side creating a "Y" formation, the lower end of the "Y" presenting in the region of the retro-montane urethra. This channel persists and prevents complete obstruction. There is little or no elongation of the retro-montane urethra; there is no shortening.

These patients give a history of difficulty in starting the stream and of sudden stoppage of the stream during the act of urination; the one outstanding symptom, however, is the presence of the sensation that the bladder has not been emptied. Rectal examination furnishes normal findings.

Treatment is removal either by open operation or with the resectoscope. This type of case lends itself nicely to resection.

Another type of obstruction frequently encountered is one which apparently occurs as a result of contraction rather than hypertrophy, resulting in the formation of fibrous tissue at the bladder neck. This replaces normal tissue with scar formation. During this process the entire retro-montane urethra undergoes a shortening, this occurring in some cases to such an extent that the trigone itself is lessened in extent; such contraction results in the condition commonly known as median bar. The patient complains of difficulty in the starting and the stopping of the stream. Once started the stream is inadequate, a residual urine rapidly develops, infection is a constant feature and frequency, urgency and retention follow rapidly in the order named. Often in such cases there is an associated stone formation. The cystoscopic features of importance include, first, slight difficulty encountered in passing the instrument over the bladder neck. There is a definite shortening of the retro-montane urethra and the presence of a small bar at the vesical neck.

These cases respond beautifully to resection. This in my estimation is the operation of choice in such cases.

In review, the symmetrical lateral lobe enlargement in the early stages is suitable for resection. Following herniation into the bladder and subsequent infection, prostatectomy is the operation of choice. Postcommissural hypertrophy promises the best results when attacked by the perineal route. It has, however, in some cases responded nicely to resection, on various occasions secondary resection being required in order to remove completely the obstructive feature. Dribbling and constant leakage associated with difficulty in starting the stream occurred in 58 per cent of these cases treated by resection, these symptoms persisting in each case for months. This I believe is not always due to failure to remove the entire mass of tissue but to the partial destruction of the trigonal muscle.

Median bar formation, except in the presence of stones, is best treated by resection and, in this type of case, resection in my hands has given the best result obtained.

Men in the age group between 37 and 40 years called up for the fighting services in Great Britain have been found on medical examination to have a surprisingly high rate of physical fitness, the regular London, England, correspondent of *The Journal of the American Medical Association* reports in the December 27 issue. He says:

"Medical examination has revealed a high rate of fitness among the men called up for the fighting services; eight out of every ten have been found fit and many more will probably 'make the grade' after a few months of army life. A surprisingly high standard has been found in the aged group 37 to 40; six out of ten have been found fit. During the past six months one fifth of the men originally placed in grade 3, the lowest category accepted by the services, have been reexamined and found so improved physically as to be posted to fighting units. Formerly they were serving as clerks, orderlies, batmen and store keepers. Instructions have been given that all grade 3 men are to be examined after a few months of army life. In grade 2 comparatively few men have been regraded. This grade is composed of men not quite up to the standard needed for fighting and whose condition does not improve with army training. They are, however, capable of strenuous duties."

CONVULSIVE SHOCK THERAPY INDUCED BY ELECTRICITY

PRIOR SHELTON, M.D.

KANSAS CITY, MO.

A psychotic remission following a series of camphor-induced convulsions was reported by Oliver[1] in 1781. Similar reports appeared in the medical literature sporadically until 1935. In that year Meduna[2] made his impressive report of the treatment of schizophrenia with metrazol-induced convulsions. This report, in conjunction with Sakel's[3] report of schizophrenia treated with insulin hypoglycemia made a year previously, stimulated interest in the malignant psychoses tremendously.

After more than five years of international use of shock procedures, Strecker and Ebaugh,[4] Robinson[5] and others report that schizophrenia is not treated adequately without a complete course of insulin hypoglycemic shock, and this treatment cannot be replaced with metrazol shock in schizophrenia. However, convulsive shock therapy has been found to be specific in those affective psychoses having a large agitative or depressive or combined agitative-depressive component. This includes the involutional psychoses and many of the presenile reactions.

There have been three principal objections to the use of convulsive therapy in the affective groups, namely: that these psychoses have a marked tendency to spontaneous remission without specific treatment; there is a high incidence of complications such as dislocations and fractures resulting from these treatments, and the patients develop a tremendous fear of these procedures which has a tendency to interfere with the effectiveness of the procedure.

It is true that the affective psychoses have a tendency to spontaneous remission,[4] but it has been too little emphasized that the average length of hospitalization in untreated cases is many months and that there may be unpleasant sequelae to so long a period of hospitalization. The economic factor of long hospitalization is also an important one. Whether or not to advise shock therapy is comparable to the question that faces the surgeon when he must decide between performing a salpingectomy in the face of a chronic Neisserian infection, or treating the patient nonsurgically. In the first instance, an employed woman can be back at work in a few weeks while in the latter case she will be out of employment for many months, during which time she will be quite susceptible to psychic and physical complications.

Weinberg, Goldstein and Edlin[6] of the Chicago State Hospital have compared the type of recovery made by twenty-four patients with affective reactions treated with chemotherapy to twenty-four similar patients with spontaneous remissions. The criterion for recovery was that the patient assumed a normal life economically and socially. Follow-up studies were made on all patients. They concluded: "The average hospital residence of the 24 patients with spontaneous remission was 439.5 days, while that of the 24 patients with recovery due to chemotherapy was 163.9 days. On the surface it seemed that there was no difference in the type of recovery made, but it soon became apparent that there was a marked difference in the attitudes of the two groups toward their illness and toward the hospital. The authors think that this bears a grave prognostic significance. Those treated with chemotherapy seemed to have more of a dread of the cure than of the illness itself. They did not brood over their psychotic episode but had a feeling that should it occur again there was a remedy for the ailment. On the other hand, the group with spontaneous remission had a real dread of the disease. They tended to worry that another attack might put them in a state institution for life, and they had the feeling that should they become ill again they would have to fight their own battle against terrific odds. The attitude of the first (chemotherapy) group toward hospitals was also much more desirable. They felt that everything possible had been done by the physicians and nurses to get them well and place them on the outside. Most of the patients in the second group were of the opinion that time and not medical aid had helped them to escape a permanent life in an institution, and they bore a slight resentment toward the institution in which they had stayed for more than a year. Many of them had become institutionalized, and the psychic trauma inflicted on them may be of no little consequence."

At the Neurological Hospital the average period of hospitalization for patients treated with convulsive therapy has been six weeks. This should be compared to the sixty-three weeks average hospitalization of the group having spontaneous remissions mentioned before. The average cost of treatment of these patients at the Neurological Hospital has been less than $500.00. Robinson[7] has pointed out that this is much less than the total cost of prolonged treatment with expectant procedures at any other type of private hospital. In fact, it is less than the total cost would be in state hospitals at a basic cost of $1.00 a day.

The second and perhaps principal objection to convulsive shock therapy in the past has been overcome in many hospitals. Bennett[8] introduced curarization as a preliminary to convulsive shock therapy in 1938. Although this drug is still in the stage of clinical trial, it is well standardized and many use it as a routine procedure, thereby eliminating the hazards of dislocation and fracture. The action of curare is confined to the myoneural junctions which are anesthetized in proportion to the amount of drug used. This minimizes the contracture of the muscles and lessens the strain on the skeletal system. The result is that the patient receives all the benefit of the convulsive shock without danger of fractures or dislocations, and

without the annoying muscle soreness that almost invariably is found following convulsive shock treatments without curarization.[9]

The third objection that has been made to convulsive shock therapy is that it produces an inordinate dread of treatment in the patient. Although some writers have thought this fear had a beneficial effect, now it is believed generally that it is not only without benefit but in some cases actually nullifies the therapeutic value of the treatments.

Many convulsive agents have been tried in an effort to discover one more satisfactory than metrazol, but no satisfactory one was found until Cerletti and Bini[10] in 1938 were able to produce convulsions induced by electricity.

Berkwitz[11] substantiated their reports in 1939, and since then the use of electro-shock has come into practice at many of the psychiatric hospitals. Electro-shock has three advantages over metrazol as a convulsant agent. It does not require intravenous injection, and in some cases this is an important consideration. The convulsion produced by electricity is less severe than that resulting from metrazol; and although some fractures and dislocations have resulted from electro-shock treatments, the incidence is much lower than when metrazol is the convulsant agent. At the Neurological Hospital, these complications have been avoided by preliminary curarization which not only minimizes complications but, by making restraints and mouth gags unnecessary, eliminates the adverse psychotherapeutic effects resulting from their use.

Electro-shock treatments are far more acceptable to the patient than are metrazol treatments. In electro-shock treatments there is no latent period between the application of the current and the onset of the convulsion during which the patient has terrifying sensations as there are in metrazol treatments. Unconsciousness begins with the application of the current and should an additional shock be necessary, because of a subconvulsive reaction, the patient has no memory of anything after the initial contact is made. This is in marked contrast to the distress and apprehension seen following subconvulsive metrazol shocks. In a recent survey of physicians who have used both metrazol and electro-shock procedures, the patient's reaction to electro-shock was well expressed by one as: "Although the patients discuss the treatments, they do not cuss them as was the case with metrazol treatments."[12]

All shock procedures produce certain histologic changes in the brain which are not dependent upon muscular contractures as they are seen in hypoglycemic and curarized animals as well as in those given convulsive drugs.[13] These changes are reversible within certain limits. Opper[14] reported brain changes in animals following chemically induced convulsions when autopsies were performed immediately following the convulsions. If an interval of several weeks was allowed to elapse between the last convulsion and the killing of the animal, little if any brain changes were found, thus demonstrating the reversibility of the pathologic changes.

Clinically, there is evidence of physiologic brain disturbances following convulsive therapy in the confusion, headaches and minor memory lapses that are seen frequently.

It has been my experience that these brain changes are reduced to a clinical minimum when the convulsant procedures are given no oftener than every four or five days. This interval is apparently long enough to minimize cumulative brain disturbance, but short enough to produce a sustained clinical improvement in the patient. I have observed that an average of from six to eight electro-shocks are sufficient to produce a complete remission in the agitative depressive (involutional) psychoses.

Preliminary curarization makes it necessary to use stronger shocks to produce a convulsion than when curare is not used, but I have observed no untoward effects from the stronger shocks and I feel that curarization definitely is indicated because it avoids the hazards of fractures.

Most reports on the technic of giving electro-shock treatments have recommended using an initial minimum shock and increasing its strength and duration by degrees until a convulsion is obtained. In my experience, this procedure produces more clinical evidence of disturbed brain physiology in headaches, confusion and memory lapses than giving the patient a large initial shock and producing an immediate convulsion. Technic used at the Neurological Hospital is to give an initial shock dose of 400 milliamperes and from 50 to 60 volts for 0.5 second. This usually produces a convulsion with less evidence of brain disturbances than other authors have indicated with their technics. This electro-shock technic has been used after preliminary curarization in 456 treatments to 67 patients with uniformly satisfactory results.

CONCLUSIONS

A complete remission can be effected in those psychoses having large agitative depressive components by convulsive shock induced by electricity.

Major skeletal complications frequently seen following these treatments can be avoided by preliminary curarization.

Minor complications due to brain disturbances can be reduced to a minimum by giving the treatments at intervals of from four to five days.

Nerological Hospital.

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SAY PEPTIC ULCERS WILL HEAL WITHOUT THE USE OF ALKALIS

The healing of gastric and duodenal ulcers will progress satisfactorily without the attempted neutralization of gastric acidity with alkalis, George F. Dick, M.D., and C. Wesley Eisele, M.D., Chicago, declare in *The Journal of the American Medical Association* for January 3 in a report on a series of 41 patients.

"Under hourly treatment with milk and cream without the use of alkalis," they say, "the speed of healing of gastric and duodenal ulcers compares favorably with that under other methods of treatment. Such treatment of a series of 41 patients brought about (1) the prompt disappearance of symptoms, and the complete comfort of the patient, (2) the disappearance of . . . blood from the stool when such was present and (3) the disappearance of the x-ray crater [the cavity of the ulcer as revealed by x-rays]."

The two physicians explain that ulcer treatment without alkalis is not new and that their report confirms the findings of previous investigators.

"The use of alkaline substances in the management of peptic ulcer is almost universal, and such treatment is recommended in nearly all the current textbooks dealing with the subject," they say. "It is commonly assumed that complete neutralization of gastric acidity represents the ideal condition for ulcer healing, although no proof of this assumption exists. Furthermore, it is not certain that the highly alkaline stomach content obtained periodically in the course of alkali therapy is conducive to healing. That the conventional methods of treatment are not entirely satisfactory is manifest by the fact that scarcely a year passes without one or more new 'ulcer treatments' being advocated. At frequent intervals new kinds of neutralizing agents, supposedly with better virtues or fewer evils, are recommended."

In their series, 7 patients were suffering from gastric ulcers and 34 from duodenal ulcers. X-ray studies were used to determine the progress of the treatment. Seventy per cent of the craters of duodenal ulcers disappeared within seventy-five days. As others have noted, the authors say, complete relief of symptoms occurred in nearly all cases long before the crater disappeared. In 31 cases all symptoms were controlled within one week.

SAY OTHER TREATMENTS FOR ERYSIPELAS MADE OBSOLETE BY SULFONAMIDE DRUGS

The prompt response of erysipelas to sulfanilamide or one of its derivatives make this the treatment of choice and renders other treatment measures obsolete, Robert E. Shank, M.D.; Richard W. Maxwell, M.D., and George S. Bozalis, M.D., St. Louis, declare in *The Journal of the American Medical Association* for December 27 in a report on the results they obtained in so treating 165 patients with this disease.

Erysipelas is a common bacterial infection of the skin caused by the hemolytic streptococcus. It is characterized by intense itching, burning and inflammation of the skin, which is swollen and painful. The condition is contagious. The authors explain that prior to the introduction of sulfanilamide, methods of treating the disease were notably unsatisfactory. Describing the results they obtained with their patients, they say:

"In no instance was the lesion ever seen to spread after the first thirty-six hours on chemotherapy [drug treatment.] A small subcutaneous [under the skin] abscess was the only complication. There were no recurrences.

"In 84 patients an elevated admission temperature had returned to normal after twenty-four hours and remained normal. In 16 cases fever persisted over forty-eight hours but in no instance longer than four days."

FINLAY INSTITUTE OR THE AMERICAS IS ORGANIZED IN HAVANA, CUBA

"On January 6 in the Medical School of the University of Havana an agreement was reached for the establishment of an organization known as the Finlay Institute of the Americas to foster research and education in the field of tropical disease and to provide for an increased interchange of medical students and teachers among scientific medical institutions in all the American nations," *The Journal of the American Medical Association* for January 17 says. "Mr. Basil O'Connor, at present president of the National Foundation for Infantile Paralysis, accepted the presidency of the executive council. Dr. James E. Paullin, president-elect of the American College of Surgeons, was appointed chairman of the Scientific Advisory Committee for the United States. Other members appointed to the executive council included Drs. Thomas Mackie, president of the American Society of Tropical Disease; Dr. Morris Fishbein, editor of *The Journal of the American Medical Association;* Dr. Edgar Mayer, associate professor of medicine in Cornell University and also in the University of Havana; Dr. Enrique Saladrigas, director of the Finlay Institute of the University of Havana; Dr. Rafael Menocal, professor of surgery in the University of Havana, and Dr. Félix Hurtado, assistant minister of public health of Cuba. Executive offices will be established both in Havana and in New York. The Cuban government agreed to provide $20,000 annually for maintenance of the organization. Substantial contributions were made by several American industrialists and philanthropists.

"In the course of the negotiations for the establishment of the Finlay Institute of the Americas Mr. O'Connor presented to President Batista of Cuba and to the minister of public health, Dr. Marruz, messages from President Roosevelt and Vice President Henry Wallace, indicating their approval of the project to foster more intense cooperation between scientific institutions of the Latin American countries. Mr. Donald Nelson, who accompanied the party to Cuba, also conferred with President Batista. The University of Havanna and the medical school of the university, during the course of the negotiations, provided receptions by their faculties, and addresses were made by the American visitors and also by leading Cuban officials. Representatives of the Cuban Federation of Medicine also presented to the American delegation an offer of complete cooperation in the campaign for medical service in the war. The order of Carlos Finlay was conferred on the American visitors by President Batista. A constitution and by-laws are being prepared for the conduct of the new institute, which should serve a most useful purpose in fostering scientific interchange and good will among the medical professions of all the Latin American countries."

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EDITORIALS

THE ARMY'S HEALTH

The death rate in the Army from disease is less than one tenth of the rate in the World War years of 1917 and 1918 according to a report of the Surgeon General of the Army to the War Department on November 14. The venereal disease rate is less than half that of the previous period. In 1917 the annual rate for all venereal diseases was 107 per thousand soldiers. In 1918 it was 90 per thousand. The present annual rate approximates 40 per thousand soldiers. The annual rate for syphilis in the Army has shown a consistent decline. In 1918 the rate was 17.56 per thousand and progressively dropped to 6.59 in 1939, 5.7 in 1940 and in August 1941 it was 5.5. The August annual rate per thousand soldiers for all venereal disease was 43. Selective Service examination of prospective trainees showed that 45.2 men of every thousand were infected with syphilis.

The reductions not only in the death rates from disease but also the rates of venereal disease have resulted from an unremitting campaign by the Army and newer, more effective medical discoveries and methods have aided considerably.

LABELING OF DIETARY FOODS

Regulations governing the labeling of foods intended for special dietary purposes have been promulgated recently by Mr. Paul V. McNutt, Administrator of the Federal Security Agency. The regulations apparently cover food and dietary supplements for which special claims are made or implied relating to health and disease including vitamin and mineral preparations, staple foods fortified or supplemented with vitamins and other dietary elements, foods employed for infant feeding and foods offered as supplements in the management of obesity, malnutrition, food allergies, convalescence, pregnancy, anemias, lactation and disease. Preparations administered in potent form solely as drugs for the treatment of disease are not subject to these regulations but addition of a vitamin to a cereal brings the cereal within the scope of the regulations.

The basic purpose of the regulations is to make available to the purchaser the fullest information concerning the vitamin, mineral and other special dietary properties of the article. Therefore, a method had to be found to express vitamin content as well as other ingredients in terms which would be understood by the average purchaser. The Food and Drug Administration chose the minimum daily requirement as the basis for labeling. Labels on foods to which these regulations apply are required to state the proportion of the minimum daily requirements furnished by a given amount.

When these regulations become effective, this information will be provided in terms that can be understood for the first time. The statement on a label that an article contains 1 mg. of riboflavin means little to the average purchaser but a statement, which the new regulation will require, that a specified quantity of a cereal contains one half the minimum adult daily requirement of riboflavin, will inform the purchaser at least that additional riboflavin is required.

RESULTS OF PHYSICAL EXAMINATION OF FARM POPULATION SOON TO BE AVAILABLE

Data now being tabulated by the Rural Sociology Department of the Missouri Agricultural Experiment Station, University of Missouri, will provide one of the most comprehensive bodies of information regarding the physical condition of farm people that has ever been assembled in the United States. The story behind this investigation, the results of which will soon be available to the Missouri State Medical Association, is given for the benefit of those who may wish to use the information later.

During the spring of 1941, the Farm Security Administration extended the privilege of a complete physical examination to its clients in the cotton delta area of Southeast Missouri. From members of the Missouri State Medical Association and the Missouri State Dental Association a staff of medical examiners, dentists, roentgen ray and laboratory technicians was established. Client families were notified when and where to appear and the examination proceeded under the general supervision of Dr. B. A. Dyar, regional health specialist, Farm Security Administration, Indianapolis, Indiana.

During the examinations, the members of 843 families were examined, providing records for 4,131 individuals ranging in age from infants less than 1 year to persons over 65. Of this number, 2,645 persons were white and 1,486 were Negro. The social composition of the population included not only husbands, wives and children but other per-

sons related and unrelated living in the client households.

Geographically, 285 familes came from New Madrid County, 199 from Pemiscot, 165 from Mississippi, 118 from Dunklin, 70 from Stoddard, 5 from Scott and 1 from Butler County. Occupationally, 429 families were those of farm laborers and 414 were those of renter-operators.

After the examinations were completed, each case was reviewed and a diagnosis sheet prepared showing recommended treatments and remedial corrections that should be made.

These data are now being tabulated under the direction of Dr. C. E. Lively of the Rural Sociology Department of the University of Missouri at the joint request of the Farm Security Administration, the Missouri State Medical Association, the Missouri State Dental Association, Group Hospitals, Inc. and the Missouri Social Security Commission. A copy of the tables will be supplied, as soon as they are ready, to each cooperating agency. Preliminary reports will be supplied to cooperating agencies and interested parties as the data are interpreted and prepared for publication. In this manner it is hoped that the information can be put to use at an early date.

LIFE EXPECTANCY

The Census Bureau has issued a table showing expectation of life for different age groups based on the experience of white females in the general population of the United States for the period 1930 to 1939. A hypothetical table for 1941 has been compiled by the Metropolitan Life Insurance Company. This is the third hypothetical life table issued by this company, the others being issued in 1922 and 1933. These two former hypothetical tables are almost identical to the one just issued by the Census Bureau which was based on actual experience.

Commenting on the comparison of the hypothetical tables and the one issued by the Census Bureau, the *Statistical Bulletin* of the Metropolitan Life Insurance Company for November 1941 says: "Such have been the successes of modern medicine and public health in the last few decades that the results have excelled even the most sanguine expectations of the leaders in the field. Life tables, constructed not on actual mortality but on what twenty years ago seemed the best results attainable, have since been not only equalled but surpassed by experience.

"When the first hypothetical life table was prepared in 1922, the reductions assumed from the prevailing mortality of that period were considered to be material, but not radical. The resulting expectation of life at birth came to 64.75 years at a time when the actual figure for the United States was under 58 years. Mortality in the first year of life was assumed as 38.21 per 1,000; at age 1, as 10 per 1,000, and at age 10, as 1.14 per 1,000. The table expressed 'the best mortality we may hope for with our present knowledge and in the light of our actual achievements.' No time was specified when this hypothetical table might materialize, but, as events proved, the waiting period was not long."

Only at age 70 does the divergence of the table issued by the Census Bureau and the hypothetical table amount to as much as one year; up through age 50 the differences are less than 0.3 year. When a comparison is made, not of the expectation of life but of the mortality rates in these two life tables, it is found that, except for the first year of life and at ages 50 and 60, the actual death rates for white females in 1930 to 1939 proved to be lower than in the hypothetical table of 1922. Thus the hopes of the hypothetical table have been not merely realized but surpassed by actual experience within a period of two decades.

The latest hypothetical table yields an expectation of life at birth of 70.78 years, not quite one year greater than that found in 1933. The figures of the new hypothetical table show expectation of life at 1 year of 71.58; at 2 years, 70.81; at 3 years, 69.93; at 4 years, 69.02; at 5 years, 68.10; at 10 years, 63.36; at 20 years, 53.78; at 30 years, 44.57; at 40 years, 35.45; at 50 years, 26.69; at 60 years, 18.55; at 70 years, 11.60, and at 80 years, 6.38.

NEWS NOTES

Dr. Willard Bartlett, Sr., St. Louis, was a guest of the Memphis Surgical Society at Memphis, Tennessee, on December 8 and spoke on "Treatment of Thyrotoxicosis."

The St. Louis Surgical Society held its annual meeting in St. Louis on January 14. The following officers were elected for the ensuing year: President, Dr. O. B. Zeinert; treasurer, Dr. M. B. Clopton; secretary, Dr. J. Barrett Brown; directors, Drs. R. E. Schlueter, Omar R. Sevin and Charles F. Sherwin.

The sixth annual National Social Hygiene Day, sponsored by the American Social Hygiene Association, will be held on February 4. The Missouri Social Hygiene Association will hold its annual meeting in St. Louis on that day with a panel discussion on "The Importance of Social Hygiene in Civilian Defense."

Dr. Hal Foster, Kansas City, retired from active practice on December 31 after sixty years of practice, fifty-nine of them spent in Kansas City. Dr. Foster was the first Kansas City physician to specialize in ear, nose and throat work. He was the second secretary of the Jackson County Medical Society. Dr. Foster presented his library, including many early volumes, to the Jackson County Medical Society Library.

Scientific exhibits will be stressed at the 1942 Annual Session of the Missouri State Medical Association to be held in Kansas City, April 27, 28 and 29. Members wishing to present exhibits should contact Dr. Ralph R. Coffey, 1324 Professional Building, Kansas City, member of the Committee on Scientific Work in charge of scientific exhibits.

The sixteenth annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, on Sunday, February 15, at 9:00 a. m. Discussions will include "The Relation of the Physician to Military, Civilian and Industrial Health," "The Role of the State Medical Society and State and City Departments of Health in National Defense," "Rejected Selectees and Their Rehabilitation for Active Military Service," and "The Role of the Medical, Dental, Nursing Schools and Hospitals in Anticipating the Acceleration of Training." The session is open to all members of organized medicine.

Beginning with volume 3 (1942) the name of the "Bibliography of Pharmacology" will be changed to "Bibliography of Pharmacology and Chemotherapy." No change in scope is contemplated. The field is defined as "A reference list of current American and foreign literature relating to the action of known chemical compounds (natural or synthetic) on animal organisms and to therapeutic use of such compounds, including clinical investigations but not including routine clinical and case reports." Requests for more information or for a specimen page may be addressed to the Hooker Scientific Library, Central College, Fayette.

DEATHS

Payne, Provo L., M.D., Drexel, graduate of the Kentucky School of Medicine, Louisville, 1892; member of the Cass County Medical Society; aged 73; died August 9.

Russell, George A., M.D., Boonville, graduate of the Hahnemann Medical College and Hospital, Chicago, 1888; member of the Cooper County Medical Society; aged 81; died October 2.

Brandenburger, Louis A., M.D., St. Louis, graduate of the Marion-Sims College of Medicine, St. Louis, 1899; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 65; died October 5.

Hardy, Joseph, M.D., St. Louis, graduate of Washington University School of Medicine, 1892; honor member of the St. Louis Medical Society; aged 80; died October 14.

Schwarz, Frank J., M.D., St. Louis, graduate of the Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 64; died October 28.

Johnstone, Paul A., M.D., Kansas City, graduate of the University Medical College of Kansas City, 1903; honor member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 75; died November 9.

Hale, Joseph M., M.D., Dearborn, graduate of the Ensworth Medical College, St. Joseph, 1891; member of the Platte County Medical Society; aged 77; died November 10.

Davis, Harry B., M.D., Kansas City, graduate of the University of Louisville School of Medicine, 1908; member of the Jackson County Medical Society; Fellow of the American Medical Association; member of the American Board of Ophthalmology; aged 58; died November 23.

Rutledge, G. M., M.D., Ste. Genevieve, graduate of the College of Physicians and Surgeons, Keokuk, Iowa, 1889; aged 79; died December 10.

MISCELLANY

ASSIGNMENT AND PROCUREMENT SERVICE

The following information and recommendations have been released by the Committee on Assignment and Procurement Service, Dr. Sam F. Seeley, Executive Officer.

I. Medical Students

A. All students holding letters of acceptance from the dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools, who have not done so, should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H. V. (P) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R.O.T.C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least twelve months of internship.

II. Recent Graduates

Upon successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H. V. (P), U. S. Navy Reserve, should make immediate application to the Commandant

of his Naval District for commission as Lieutenant (J. G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant (J. G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. Twelve Months Interns

All interns should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as Lieutenant (J. G.), United States Navy or Navy Reserve. Upon completion of twelve months internship, except in rare instances where the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service Acts.

IV. Hospital Staff Members

Interns with more than twelve months of internship, assistant residents, fellows, residents, junior staff members, and staff members under the age of 45, fall within the provisions of the Selective Service Acts which provide that all men between the ages of 20 and 45 are liable for military service. All such men holding Army commissions are subject to call at any time and only temporary deferment is possible, upon approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only upon approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the Executive Order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available to the Army, Navy, governmental, industrial or civil agencies requiring their services for the duration of the war.

V. All Physicians Under 45

All male physicians in this category are liable for military service and those who do not hold commissions are subject to induction under the Selective Service Acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (a) over 45, (b) physicians under 45 who are physically disqualified for military service, (c) women physicians and (d) instructors and those engaged in research who do not possess an M.D. degree whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. All Physicians Over 45

All physicians over 45 will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those agencies.

The maximal age for original appointment in the Army of the United States is 55. The maximal age for original appointment in the Naval Reserve is 50 years of age.

All inquiries concerning the Procurement and Assignment Service should be sent to The Executive Officer, 5654 Society Security Building, 4th and Independence Avenues, SW, Washington, D. C., and not to individual members of the Directing Board or of committees thereof.

CIVILIAN DEFENSE

The Medical Division of the U. S. Office of Civilian Defense has issued the second bulletin of its official series of instructions for emergency medical care of the civilian population in war emergencies, "Equipment and Operation of Emergency Medical Field Units." The bulletin explains the duties of local chiefs of Emergency Medical Service, describes the operation of Casualty Stations and First Aid Posts and lists the minimum equipment for Emergency Medical Field Units, organization of which was described in the first bulletin, "Emergency Medical Service for Civilian Defense," issued in August 1941 and reprinted in the October issue of THE JOURNAL.

The Office of Civilian Defense recommends that all defense councils adopt the plans as set forth in these bulletins. Uniformity will make it possible for adjacent communities to pool or exchange their resources, and it is also desirable because of priorities in materials and manufactures. All equipment recommended conforms with that of the Medical Department of the U. S. Army, the bulletin points out.

The field casualty service projected by the Medical Division of the Office of Civilian Defense will be made up of Emergency Medical Field Units derived from hospitals in the community. These units will work in Casualty Stations set up at a predetermined site some distance from the scene of a disaster. The Casualty Stations will care for persons with minor injuries and those suffering from nervous shock or hysteria until they may return to their homes or to temporary shelters. An important part of the work of these stations will be to keep records of patients treated.

From the Casualty Stations medical teams may be sent closer to the disaster to set up First Aid Posts in which severely injured persons may receive emergency treatment before they are sent to hospitals. Here casualties will be classified according to the seriousness of the injuries and directed to Casualty Stations or hospitals as their condition requires. The instructions emphasize the importance of tagging all casualties immediately, giving all possible information as to their identity, their injuries and the treatment given. Equipment for the medical teams who will work in First Aid Posts has been worked out to provide in easily portable form the essentials for emergency treatment. Replacements will be furnished by Casualty Stations, which will have on hand larger stores of supplies.

To facilitate the sorting of casualties when they arrive at hospitals, the following symbols have been devised to be drawn on the forehead of injured persons: U, urgent, requiring priority attention; TK, tourniquet; T, indicating tetanus antitoxin has been given; H, internal hemorrhage; M¼, indicating morphine gr. ¼ or M½, gr. ½ given.

Casualty Stations will have on hand bulky equipment that cannot be carried by the first aid groups such as traction splints, stretchers, collapsible cots, blankets and a reserve supply of drugs and dressings which may be issued to First Aid Posts as needed.

A tag has been designed which includes information as to identify and provides space for recording diagnosis, treatment and disposition of the case. The tag is to be filled out at the First Aid Post and will be attached to the patient before he is transferred to a hospital.

The local Chief of Emergency Medical Service, who functions under the administrative authority of the local director of civilian defense, has fifteen specified duties, explained in detail in Bulletin No. 2. Briefly, these officers' duties will be: integrate officials and voluntary organizations which are to participate in the medical activities into the comprehensive community program; help organize Emergency Medical Field units as described in Bulletin No. 1; select sites for Casualty Stations; make a map locating hospitals, Casualty Stations, storage depots; plan transportation service for casualties and for medical personnel; cooperate with local defense authority in arranging drills of Emergency Medical Field Units in cooperation with other civilian defense units; make inventory of hospitals and other buildings in adjacent territory to which patients might be evacuated; assist in planning courses for volunteers in medical activities; stimulate recruitment of volunteers for the nurses' aide courses of the American Red Cross and help in placing these aides in hospitals, clinics, health departments and field nursing services; assist the local Civilian Defense Volunteer Office in training and placement of volunteers in health and medical agencies; stimulate and guide first aid training through the Red Cross and other agencies; stimulate and guide organization of First Aid detachments in industrial plants and similar establishments; collaborate with health authorities in protective measures against sanitary hazards; collaborate with authorities in plans for evacuation, with particular attention to medical needs of the population; keep the community and the participating groups informed of plans and activities.

BOOKS FOR LEISURE MOMENTS

SPEEDING CHILDREN'S CONVALESCENCE

Anne Marie Smith has given many years to the organization of play activities in hospitals, the last nine years exclusively to such programs for children. From these experiences she writes "Play for Convalescent Children" (A. S. Barnes & Co., New York) in order that play may be made an integral part of the program of the convalescent child.

Forty per cent of the time spent annually by over a million children in the hospitals of this country is taken up with their physical care; the greater half of their time is given over to haphazard activities self-designed to lessen the tedium of existence. As a result the children become irritable, frequently develop into "problem children" if the stay is at all protracted. The banana cart ride to the operating room may be one long wail of anguished protest—the unrecognized origin of overwhelming fears.

Miss Smith writes that if full advantage be taken of the opportunities offered by organized play, visiting children will even clamor for admission to the hospital wards; those resident within the institution may be helped to overcome personality difficulties through the socializing influence of organized games. The picture, as she paints it, is an attractive one. Pediatricians in charge of hospital wards as well as hospital administrators will find this little book thought-provoking, an aid in meeting the needs of the hospitalized child. The single drawback of the volume is the fact that detailed directions for the described games are not given. This necessitates reference to each of the several works of other authors who describe particular games.

B. Y. G.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

Moniteau County Medical Society, December 23, 1941.

Miller County Medical Society, December 26, 1941.

Chariton County Medical Society, December 29, 1941.

Montgomery County Medical Society, January 20, 1942.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Grundy-Daviess County Medical Society

The Grundy-Daviess County Medical Society met January 2 at Trenton with Drs. E. J. Mairs, O. F. Duffy, E. A. Duffy, W. A. Fuson, O. R. Rooks, Trenton, present.

The following officers were elected for the ensuing year: President, Dr. O. R. Rooks, Trenton; vice president, Dr. O. F. Duffy, Trenton; secretary-treasurer, Dr. E. A. Duffy, Trenton; delegates, Dr. E. J. Mairs, Trenton (Grundy County), and Dr. F. K. Wilson, Winston (Daviess County); alternates, Drs. C. H. Cullers, Trenton, and R. V. Thompson, Jamesport; censors, Dr. W. A. Fuson, Trenton, three years; Dr. Bertha E. Sheetz, Trenton, one year, and Dr. C. H. Cullers, Trenton, two years.

E. A. Duffy, M.D., Secretary.

Nodaway-Atchison-Gentry-Worth Counties Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, January 5, with Dr. Charles T. Bell, newly-elected president, presiding.

Members present were Dr. Henry C. Bauman, Fairfax; Charles T. Settle and Emmett B. Settle, Rock Port; Charles T. Bell, J. M. Boyles, Benjamin F. Byland,

Hiram Day, Loren E. Egley, Robert C. Person and William M. Wallis, Jr., Maryville; Charles D. Humberd, Barnard, and Joseph C. Manning, Skidmore. Guests present were Drs. Charles H. Flynn and P. E. Newport, Clarinda, Iowa; George A. Young, C. F. Ashby and Charles Baker, Omaha, Nebraska; Ross Deitz, D.D.S., Rock Port, and Jesse Miller, D.D.S., Maryville.

The Secretary announced the removal of Dr. Charles H. Flynn, Tarkio, charter member, to Clarinda, Iowa, on November 15, and the receipt of a notice from the secretary of the Page County (Iowa) Medical Society, that Dr. Flynn had been elected to membership in that society and the Iowa State Medical Association. This transfer brought up the subject of the lack of records of the dates of election to memberships in the constituent societies of a number of members and a request was made that anyone having possession of or knowledge of any old minute books or other records of any of the four former constituent societies to bring them to the secretary's attention.

The president invited comment from members about the effects of recent war developments on the Society's affairs and mentioned the loss in membership, the drop in attendance at meetings and the increasing difficulties in securing competent lecturers because so many physicians are entering military service. Dr. Emmett B. Settle, Rock Port, chairman of the program committee, moved the society amend the by-laws to the effect that the society shall meet every other month instead of monthly. The motion was seconded and carried and will be heard at the February meeting. A plan of adjourning each meeting for two months rather than amending the by-laws was discussed.

The president announced that Dr. Emmett B. Settle, chairman of the program committee, would enter military service on January 15 and his unexpired term on the committee will be filled by Dr. Henry C. Bauman, Fairfax.

Dr. Settle announced that the scientific program for the meeting of February 2 would be presented by Dr. R. L. Sutton, Jr., Kansas City, who would speak on "Recent Advances in the Treatment of Common Skin Disorders." Dr. Sutton also will show colored motion pictures of his recent big-game hunt.

Dr. Charles P. Baker, Omaha, Instructor in Pathology in the University of Nebraska Medical School and Pathologist to the Nebraska Methodist Hospital, Dr. George A. Young, Omaha, Instructor in Medicine in the University of Nebraska Medical School, and Dr. C. F. Ashby, Omaha, Assistant in Pathology in the University of Nebraska Medical School, with lantern slides and a projecting microscope presented records, case histories, colored photographs and stained tissue sections of surgical and autopsy specimens in a diagnostic "quiz" session. Progress notes, comments on the patients and the treatments were given.

CHARLES D. HUMBERD, M.D., Secretary.

EIGHTH COUNCILOR DISTICT

W. WALLIS SMITH, SPRINGFIELD, COUNCILOR

Dallas-Hickory-Polk County Medical Society

The Dallas-Hickory-Polk County Medical Society met at the High School Building, Fair Play, on January 6 at 7:00 p. m. Dinner was served by the foods class of the high school.

Members present were Drs. C. H. Brown, Fair Play; V. H. Greenwood, R. E. Harrell, G. C. Plummer, Buffalo; D. C. McCraw, Bolivar, and G. G. Robertson, Humansville.

Dr. D. C. McCraw, Bolivar, presided at a round table discussion.

It was decided that the Society would meet on the second Tuesday instead of the first Tuesday of each month. The next meeting will be on February 10 at Humansville.

The following officers were elected: President, Dr. D. C. McCraw, Bolivar; vice presidents, Drs. G. C. Plummer, Buffalo, and G. G. Robertson, Humansville; secretary and treasurer, Dr. R. E. Harrell, Buffalo; delegates, Drs. G. C. Plummer, Buffalo (Dallas County), C. H. Brown, Fair Play (Polk County), A. S. Johnston, Wheatland (Hickory County); alternates, Drs. R. E. Harrell, Buffalo; D. C. McCraw, Bolivar, and J. W. Murray, Quincy; board of censors, Drs. V. H. Greenwood, Buffalo; C. H. Brown, Fair Play, and A. S. Johnston, Wheatland.

R. E. HARRELL, M.D., Secretary.

NINTH COUNCILOR DISTRICT

ELDON C. BOHRER, WEST PLAINS, COUNCILOR

Pulaski County Medical Society

The Pulaski County Medical Society met on December 17.

The following officers were elected: President, Dr. Cyrus Mallette, Crocker; vice president, Dr. C. S. Miller, Waynesville; secretary and treasurer, Dr. E. A. Oliver, Richland; delegate, Dr. A. J. Crider, Dixon; alternate, Dr. C. S. Miller, Waynesville.

E. A. OLIVER, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society held its December meeting at Cape Girardeau.

The following officers were elected: President, Dr. Paul B. Nussbaum, Cape Girardeau; vice president, Dr. D. I. L. Seabaugh, Jackson; secretary Dr. M. H. Shelby, Cape Girardeau; treasurer, Dr. C. T. Herbert, Cape Girardeau; delegate, Dr. C. A. W. Zimmermann, Cape Girardeau.

M. H. SHELBY, M.D., Secretary.

Ste. Genevieve County Medical Society

The Ste. Genevieve County Medical Society held its annual meeting on December 10 at the office of Dr. R. C. Lanning, Cape Girardeau.

Following disposal of routine business, the officers for the ensuing year were elected as follow: President, Dr. R. C. Lanning, Ste. Genevieve; secretary and treasurer, Dr. R. W. Lanning, Ste. Genevieve; delegate, Dr. A. E. Sexauer, Ste. Genevieve; member of board of censors, Dr. C. J. Clapsaddle, Ste. Genevieve.

The president appointed a committee on public health and legislation as follows: Drs. J. A. Wilkens, St. Mary's; C. J. Clapsaddle and A. E. Sexauer, Ste. Genevieve.

R. W. LANNING, M.D., Secretary.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met January 9 at 7:30 p. m. at the St. Francois County Courthouse, Farmington. The president, Dr. Van W. Taylor, Bonne Terre, presided.

Dr. Paul F. Fletcher, St. Louis, gave an interesting discussion of estrogenic therapy with particular stress on the synthetic estrogenic substance, stilbestrol. A round table discussion followed.

Members present were Drs. J. W. Hunt, Leadwood; J. P. Yeargain, Irondale; C. H. Appleberry, Flat River; H. W. Barron and T. L. Waddle, Fredericktown; R. E. Harlan, Ironton; D. E. Smith and Van W. Taylor, Bonne Terre; Reuben Appleberry, N. W. Hawkins, Emmett F. Hoctor, G. T. Graves, Ralph Kuhlman and C. C. Ault, Farmington.

C. C. AULT, M.D., Secretary.

BOOK REVIEWS

Body Mechanics in Health and Disease. By Joel E. Goldthwait, M.D., F.A.S.C., LL.D., Lloyd T. Brown, M.D., F.A.C.S., Loring T. Swaim, M.D., and John G. Kuhns, M.D., F.A.C.S. With a Chapter on the Heart and Circulation as Related to Body Mechanics. By William J Kerr, M.D., F.A.C.P. One hundred and twenty-one illustrations Third edition, completely revised and reset. Philadelphia, London, Montreal: J. B. Lippincott Company. 1941. Price $5.00.

The authors are four distinguished orthopedic surgeons of Boston, all members of the American Orthopedic Association and three of them on the faculty at the Harvard Medical School. Dr. Kuhns is one of the outstanding internists of America.

Function is the middle name of a proper orthopedic surgeon. He is interested in the human body in action. His prime purpose is to preserve function or to restore lost function. An orthopedist with some artistic bent is usually a natural judge of sculpture. He could go into a great gallery and pick out the best statues without assistance. He knows how the discus thrower would have to hold his body to preserve balance and to exert the required force. He knows just how the athlete scraping his back would stand, how he would shift his weight, what muscles would be prominent.

An orthopedist is usually a valuable member of any diagnostic clinic group. He notices how the patient walks, sits and gets up and down. He observes his body in bending and turning. He notes asymmetry and restrictions of movement and pain checks. He could often mark a red cross on some part of the patient's body to denote that further investigation in that region would probably disclose something of importance.

Most physicians know something about faulty posture and its possible ill effects on the abdominal viscera via the ptosis route. Yet all too often one sees patients who have had an appendix out, been treated for colitis, had the uterus suspended, taken a rest cure and now are hesitating between an operation for hemorrhoids and an exploration of the gallbladder, when all their troubles were functional visceral disturbances due to faulty body mechanics.

This book is no mere restatement of the facts about posture. To be sure it starts with that foundation. On the postulate that there is no one correct posture it considers the different types of build and the physiologic posture of each. It also suggests the pathologic changes to which each group is most liable.

This work goes much more deeply into the subject of the effects of faulty body mechanics. Besides the introductory chapters there is one on backache and other spinal strains; two on circulatory disturbances including angina pectoris; two on diseases of the abdominal viscera; one on diseases of the nervous system and one on chronic arthritis.

There are spectacular case reports showing relief or apparent cure by attention to body mechanics in cases as divergent as apparent diabetes mellitus, gastric ulcer, myocarditis, low blood pressure, hypothyroidism, peripheral circulation and even multiple sclerosis. The chapter on circulation reports assistance from the "Kerr-Lagen" belt in angina pectoris and functional cure in postural emphysema. Under arthritis the predisposing effect of posture is noted and the fact that without the correction of deformity in chronic cases, cure is almost impossible.

I feel sure that the authors do not mean that cure can be expected in many cases merely by attention to faulty mechanics but that if such wonderful results are obtained in occasional cases, surely attention to body mechanics should be one item in the treatment of a large number of pathologic conditions.

Chapter 12 on "Treatment" is devoted to apparatus and to exercises.

This book is not a treatise for orthopedic surgeons but one which can be read with profit by any doctor.

R. McE. S.

Hemorrhagic Diseases. Photo-Electric Study of Blood Coagulability. By Kaare K. Nygaard, M.D., Former Fellow in Surgery, the Mayo Foundation; Former Assistant Surgeon, the University Clinic, Oslo; Fellow of the Alexander Malthe Foundation for Research in Medicine, Surgery and Gynecology. Illustrated. St. Louis: The C. V. Mosby Company. 1941. Price $5.50.

The basis of this book of a little over 300 pages is a consideration of the photoelectric method of determining the time of blood coagulation. The apparatus, principle involved and the technic are described fully. It is clearly pointed out that the method is influenced by factors which modify the results, as is true of all other methods. At this time it is not apparent that the superior advantages of the photoelectric method are sufficient to justify its use to the exclusion of others.

The discussions of the coagulation of blood are adequate and theories are reported in detail. No attempt is made to solve the unsettled problems in the physiology of blood coagulation.

Observations, leading to conclusions and clinical advice that are no longer accepted, are stated frankly. Howell's statement that the prothrombin was at fault in hemophilia is supplemented by a record of his later experiments in which the blame is placed on the thromboplastin and concludes that the prothrombin in hemophilia, unlike the prothrombin in sweet clover disease, plays no part in the bleeding.

Calcium, overrated by Mayo-Robson and others, has been put in its proper place, thereby losing most of its clinical prestige. Also, the limitations of vitamin K are pointed out.

The records of original work done by the author make good reading. The observation that the citrate added to blood in vitro does not find its way into the cellular elements of the blood will be of interest to those who, following the advice of Jacobi, have used intravenous citrate solutions in attempting to delay and combat the excessive autolysis and heterolysis of such conditions as severe thyrotoxicosis and all diseases associated with a badly damaged liver.

This book should be of interest to all surgeons as well as physicians and laboratory workers for the surgeon should be a physician who performs operations; and he should be a better doctor than he is operator.

The surgeon who reads this book must not be disappointed if he fails to find an explanation and remedy for all of the hemorrhagic complications that might follow a surgical operation. However, he will be helped by reading this book and, regardless of his knowledge, wisdom and experience, he will, when he has finished the book, be unable to say, with Omar, that he came out by the same door wherein he went.

J. G. S.

Medical Diagnosis and Symptomatology. By Samuel A. Loewenberg, M.D., F.A.C.P., Clinical Professor of Medicine, Jefferson Medical College; Assistant Physician to the Jefferson Hospital, etc. Profusely illustrated, many in color, fifth edition, entirely revised and reset. Philadelphia: F. A. Davis Company, Publishers. 1941. Price $12.00.

This book is well adapted for students and practitioners. Physical signs especially are stressed in a detailed examination of the respiratory system. However, considering the frequency of lung carcinoma it seems that there should be more than a half a page devoted to malignancies of the lung.

The author's normal blood pressure limits of up to

160 systolic and 90 diastolic for persons below 50 and 180 systolic and 120 diastolic in persons above 50 are indicative of an acceptance in some quarters of a higher level for normal blood pressure. His list of the causes of high blood pressure and low blood pressure is valuable. The heart and blood vessels are treated exhaustively.

The illustrations throughout are excellent and numerous. There are many tables on differential diagnosis and other topics which summarize and clarify the text. Gastroscopic views in natural color enhance the value of the book. P. M. N.

INFANT NUTRITION. A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, B.S., M.D., Late Professor of Pediatrics, Washington University School of Medicine; Physicians in Chief, St. Louis Children's Hospital, St. Louis. Revised by P. C. Jeans, A.B., M.D., Professor of Pediatrics, College of Medicine, State University of Iowa, Iowa City. Third edition. St. Louis: C. V. Mosby Company. 1941. Price $5.50.

This standard work is well known among pediatricians and every general practitioner may profit by its study. Some objection might be raised to the fact that biochemistry is emphasized rather than clinical features. In this lies its strength; it forces the modern physician to think in physiologic conceptions when viewing a pathologic picture. As a groundwork for the medical student this presentation of infant nutrition is not surpassed. It combines scientific principles with practical procedures. J. Z.

MANUAL OF CLINICAL CHEMISTRY. By Miriam Reiner, M.Sc., Assistant Chemist to The Mount Sinai Hospital, New York. Introduction by Harry Sobotka, Ph.D., Chemist to The Mount Sinai Hospital, New York. With eighteen illustrations. New York: Interscience Publishers, Inc. 1941. Price $3.00.

The "Manual of Clinical Chemistry" by Miriam Reiner consists of a very useful and well ordered arrangement of laboratory tests of a biochemical nature together with the routine clinical tests for diagnostic purposes.

The author states that the book was intended for the use of interns and technicians and consisted primarily of a laboratory manual. This purpose has been fulfilled ideally as the book does offer a compact and complete list of various clinical tests with the technic for their performance.

On the other hand, the usefulness of the book to the physician who runs his own laboratory is sharply limited as it must be used in conjunction with other texts and publications if a full interpretation of the biologic and biochemical significance of the various tests is sought. L. D. T.

PHYSICAL MEDICINE. The Employment of Physical Agents for Diagnosis and Therapy. By Frank H. Krusen, M.D., F.A.C.P., Associate Professor of Physical Medicine, the Mayo Foundation, University of Minnesota, etc. With 351 illustrations. Philadelphia and London: W. B. Saunders Company. 1941. Price $10.00.

This book embraces the entire field of the use of physical agents in both diagnosis and therapy and is recommended to both the expert as a tremendous bibliography and to those for whom physical therapy remains a field in which their interest is great.

Dr. Krusen dates the study of electrotherapy from 14 A.D. when Anthero, during a walk at the sea shore, stepped on an electrified fish and was thus freed of gout. A history of the subject is reviewed in a few pages and then attention is paid to the use of heat, light, electricity, water and mechanics. Much attention is given to hyperpyrexia. The entire book is scientific and scholarly and there are many references to the literature. At the same time, the treatment is such that a working knowledge of the subject is obtained.

This book is earnestly recommended for those who have any contact with the subject. M. N. O.

ELIMINATION DIETS AND THE PATIENT'S ALLERGIES. A Handbook of Allergy. By Albert H. Rowe, M.D., Lesturer in Medicine, University of California Medical School, San Francisco, California, etc. Philadelphia: Lea & Febiger. 1941. Price $3.00.

The use of the author's elimination diets as a diagnostic procedure and as a therapeutic modality are minutely and distinctly related. Each diet is explained by a menu and a special menu of these diets is given for the undernourished, for the obese, for the diabetic, for the infant, for young children and for those who must eat away from home.

It also discusses briefly (which is unavoidable in a handbook) the clinical manifestations of allergy, their diagnosis by means other than the elimination diets, their etiologic agents and their control. There are also notes on a variety of subjects related to the management and treatment of allergic patients. Among these are maintenance of weight, history forms and questionnaires, environmental control, biologic relation of foods, ingredients of commercial foods, recipes for the use of the diets and general directions for pollen and serum therapy.

The value of this book lies in the explicit directions for the proper use of these diets, with insistence upon the ingestion of the normal amount of protein, vitamins, minerals and calories; in giving the source of both usual and unusual allergen; in listing the ingredients of nearly all commercial foods and in the recipes which aid in making these diets more palatable. C. H. E.

DISEASES AFFECTING THE VULVA. By Elizabeth Hunt, B.A., M.D., Ch.B. (Liverp.), Honorary Physician to the Skin Department, South London Hospital for Women, Honorary Dermatologist, New Sussex Hospital for Women and Children, etc. With thirty-six illustrations and eighteen plates in color. St. Louis: The C. V. Mosby Company. 1940. Price $4.00.

This book is written by a dermatologist and deals with vulval affections, mainly nonvenereal. There are colored illustrations of many of these vulval lesions. These lesions are classified according to their etiology and their methods of treatment are discussed. C. O. McC.

CARDIAC CLINICS. A Mayo Clinic Monograph. By Fredrick A. Willius, B.S., M.D., M.S. in Med, Head of Section of Cardiology, Mayo Clinic, and Professor of Medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minnesota. Illustrated. St. Louis: The C. V. Mosby Company. 1941. Price $4.00.

"Cardiac Clinics" is not a textbook. It is a rather radical change from the usual book on cardiology. The author has attempted to place before the general practitioner of medicine a discussion of heart disease based upon the presentation of case histories, physical findings, roentgen ray and laboratory data. The case records are actual records of patients examined at the Mayo clinic and represent the common run of cardiac diseases encountered in practice.

Whenever necropsy was performed the findings are incorporated and any discrepancy between clinical and postmortem diagnosis is thoroughly discussed. The

pathologic physiology, treatment and special diagnostic methods are included with each case report.

The book is extremely interesting and the author writes clearly and concisely.

Those who feel that a book should be centered upon case reports will enjoy it. Those who desire a more complete discussion of heart disease will find many essential points lacking.

The book is recommended only for those who already have access to a textbook on cardiology. M. B. K.

Cancer of the Face and Mouth. Diagnosis, Treatment, Surgical Repair. By Vilray P. Blair, M.D., Sherwood Moore, M.D., and Louis T. Byars, M.D., St. Louis. Illustrated. St. Louis: The C. V. Mosby Company. 1941.

In the introduction to this book J. M. T. Finney says, "The true value of a book is largely determined by the extent of the authors' knowledge and experience. . . ." The volume is in every respect to be commended. . . ." It is presented with a hope that a resumé of 20 years' observations on some 1,500 cases "will be of aid to men who first see such cases and who bear the responsibility of deciding what shall be done at a time when it is most likely that something worth while can be done." Better results can be obtained, in general, if recognition and treatment are early, if the plan of treatment is rational, and if execution of the plan and care of the patient before, during and after treatment are adequate.

It is at present axiomatic that complete removal or destruction of all living cancerous cells is necessary for the cure of a cancer, but this might be accomplished by different procedures in different parts of the same field. One might make a clean knife excision of the lymphatics on one side of the neck with the exception of one cancerous node which, attached to the bifurcation of the carotid artery, is treated with radium element or emanation. Various combinations of instrumentalities may be devised. The physician must be master of his tools.

Practical discussion is given of care of the patient, cancer of the face, ear, nose, lip, tongue, floor of the mouth, pharynx, buccal bucosa, alveolar process, palate, nasopharynx, sinuses, maxillary antrum, moles, navi, melanomas, epithelial and dentigerous cysts, salivary glands, lymph node metastases, neck dissection, anesthesia, destruction by radiation, follow-up and operative technic.

Illustrations are profuse, good and instructive. Histologic and roentgenologic aspects are depicted. The sixty-four diagrammatic plates of operative technic are valuable. "Before and after" illustration attests the artistry of the authors in meeting extremely difficult problems with extremely commendable success. Many cases of cancer are reported, 406 of them primary in the mouth, 300 primary in the skin, others primary in the orbit, antrum, salivary glands and nasopharynx; and the five year results are given.

Study of this book approaches equivalence to a prolonged personal association with the authors. Physicians who meet such problems are bound by duty to familiarize themselves with the practice of these acknowledged leaders. R. L. S., Jr.

Accidental Injuries. The Medico-Legal Aspects of Workmen's Compensation and Public Liability. By Henry H. Kessler, M.D., Ph.D., F.A.C.S., Medical Director, New Jersey Rehabilitation Clinic; Formerly Medical Advisor, New Jersey Workmen's Compensation Bureau, etc. Second Edition, Enlarged and Thoroughly Revised. Illustrated with 202 Engravings. Philadelphia: Lea & Febiger. 1941. Price $10.00.

In the second edition of "Accidental Injuries" Dr. Kessler follows largely the style of the first edition. The book has been enlarged and considerable material and many new illustrations have been added. The first chapters of the book deal with a historical review of medical aspects of workmen's compensation laws. Schedules for rating disabilities are given. The pathology of trauma is discussed, as are the end results of trauma. The general principles underlying disability are dealt with ably. A rather comprehensive survey is made of all the frequently encountered injuries of the entire body. Unusual injuries receive much less consideration. Short case histories illustrating end results, methods of estimating end results and possible sequelae of most of the injuries are given. End results on function, the possibility of their cure by treatment and suggested treatments are noted.

The purpose of the text is to offer a yardstick by which physicians can be more in accord in their views as to the end results of injury and the amount of compensation to which the injured employee may be entitled.

There is a chapter on injuries to the eye by Andrew Rados, M.D. There is a chapter on occupational disease in which the more frequent causes of occupational disease are listed. Most of the injurious chemicals, gases and dust are discussed. A brief outline of the chief signs and symptoms of industrial diseases and laboratory data is given. The relation of injury to disease is treated in an able manner and the effect of injury upon certain constitutional diseases is given considerable attention. Rehabilitation of the physically handicapped is urged and methods for the rehabilitation, which have been used successfully by Dr. Kessler, are outlined. With unusual clearness Dr. Kessler offers methods whereby the periods of temporary disability and the evaluation of permanent disability may be determined.

The bibliography is excellent. The reproductions are helpful in illustrating the text. The book can be recommended to industrial physicians, medical examiners, lawyers, referees and to other laymen interested in this complicated medical, social and economic problem. The book is well bound, it is easily understandable, even to the layman, and printed in readable type. C. W. M.

A Textbook of Ophthalmology. By Sanford R. Gifford, M.A., M.D., F.A.C.S., Professor of Ophthalmology, Northwestern University Medical School, Chicago; Attending Ophthalmologist, Passavant Memorian and Cook County Hospitals. Illustrated. Second Edition, Revised. Philadelphia and London: W. B. Saunders Company. 1941. Price $4.00.

The purpose of this book is to give the essential facts of modern ophthalmology for the use of medical students and general practitioners within the limited space of a single volume. This involves discriminating selection, and exclusion, of material with estimation of the facts and procedures most likely to be useful to the general practitioner, with emphasis on diagnosis and on the special ophthalmologic principles which modify the application of general surgical principles.

The meticulous critic can make suggestions. In the paragraph on eversion of the lids there should be caution of the danger of everting the upper lid in presence of a corneal ulcer or of a perforating injury. In considering epibulbar tumor no mention is made of treatment with the Shahan thermophore, the method which gives the best results. Can the detailed description of such a highly technical operation as that for so frequent a condition as congenital ptosis be useful to the general practitioner? Perhaps it helps to elucidate the fundamental factors involved.

The purpose of the book is well accomplished and it will meet adequately the needs of those for whom it is written. The descriptions and explanations are clear and easily understood, not too technical nor too involved and the therapeutic procedures advised are those proved by experience to be correct. It can be most highly recommended. R. J. C.

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SYMPOSIUM ON HYPERTENSION

ETIOLOGY OF HYPERTENSION

FERDINAND C. HELWIG, M.D.

KANSAS CITY, MO.

Most students of hypertension are in general agreement regarding the circulatory dynamics and the physiologic and pathologic results of increased arterial tension. In respect to etiology, however, there still exists much confusion and speculation which has resulted in considerable controversy.

Roughly speaking, the main theories which have been propounded as being of causative significance in the production of essential hypertension can be grouped into about four major categories which I shall attempt to discuss briefly.

GROUP I. NEUROGENIC THEORY

So-called nervous strain or nervous tension with increased irritability of the vasomotor sympathetic system is held by some to be the principal cause of idiopathic high blood pressure. One of the known factors which would suggest a neurogenic background for hypertension is the hereditary tendency toward an unstable nervous system and the temporary improvement which has been recorded following certain operations on the nervous system. Unfortunately these occasional good results have been only transient. The fact that cerebral trauma and neoplasms may in themselves produce an increase in the blood pressure would seem to strengthen this hypothesis and there are many other phenomena which, when considered singly, would seem to lend some credence to this theory. However, it might be said that recent exhaustive studies along these lines suggest that the nervous system is in reality only secondarily concerned in the genesis of hypertensive vascular disease and that it acts principally in maintaining the physiologic body mechanisms in such a state that they can react to some chemical stimulus which actually produces the increased tension.

GROUP II. ENDOCRINE THEORY

It has been suggested that hypertension is due to an increased activity of the adrenals, thyroid or pituitary glands. Some spectacular instances of increased arterial pressure are observed when hyperactivity of one or more of these glands is involved. Thus, in some cases of hyperthyroidism one observes an increased blood pressure, but I think it now is conceded generally that the increased arterial pressure in these instances probably is due to the rapid heart since the pressure increase involves only the systolic phase. Certain diseases of the suprarenal glands produce alterations of blood pressure such as the hypotension observed in Addison's disease and, conversely, certain tumors of the suprarenal, such as medullary paragangliomas and cortical adenomas, may be accompanied by hypertension. With the first group of tumors, the tension may be elevated paroxysmally or raised constantly with periods of marked elevation. This picture would suggest that an increased amount of adrenalin was being poured into the blood since the symptoms which accompany these paroxysms are not unlike those which are observed following an intravenous injection of suprarenal extract. Diseases of the pituitary gland also may cause an alteration of blood pressure with low levels recorded in pituitary cachexia (Simmon's disease) in which condition there is an anterior lobe deficiency. Conversely, hypertension often is observed in the presence of basophilic adenomas of the posterior pituitary lobe (Cushing's syndrome).

GROUP III. TOXIC THEORY

The proponents of this hypothesis think that the increased pressure of essential hypertension comes as the result of some unknown exogenous infec-

tious or toxic substance which acts as a pressor substance. Unfortunately, with the exception of certain isolated instances, neither clinical nor experimental evidence is at hand to substantiate this theory. Of course, one knows that increased tension will follow lead and mercury poisoning although, in most instances, renal damage is usually responsible for the hypertension. The effect of tobacco on blood pressure is obviously secondary and probably only evanescent.

GROUP IV. RENAL THEORY

Quite recently the old theory that hypertension was due to disease of the kidney has been given new significance as a result of the experimental investigations of Goldblatt, Page and others.

Probably one of the most frequent formerly known causes of hypertension was glomerular nephritis. The pregnancy toxemias might also be mentioned, since some investigators think that they represent a type of transient glomerular nephritis although others contend that the hypertension of pregnancy toxemias has an endocrine background. Two well known congenital renal anomalies are also known to produce increased blood pressure; namely, congenital polycystic disease and sometimes congenital hypoplasia of the renal arteries will cause it. Of other vascular conditions which may or may not have a primary kidney background, one should mention the rare condition of coarctation of the aorta, whereas, occluding arteriosclerotic changes of the renal artery alone sometimes causes hypertension with apparently minimal or no ateriolar lesions in the renal parenchyma. Furthermore, a generalized systemic arteriolar sclerosis will possibly do the same thing. However, here, as Alan Moritz has shown, this lesion is also present in the kidneys. Goormaghtigh, by special staining methods, has demonstrated a group of cells of special structure in the angle between the afferent and efferent arterioles of the glomerulus. In experimental hypertension from renal ischemia, definite enlargement and other characteristic changes occur in this group of cells. Goormaghtigh thinks that these cells secrete a pressor substance. The truth of this conclusion has not been established however.

Either unilateral or bilateral pyelonephrosis, periarteritis nodosa with renal involvement or lupus erythematosis when kidney damage is present may all be accompanied by hypertension. Moreover, increased blood pressure may be present when there is some compression of the renal parenchyma as is sometimes observed in children with a Wilm's tumor or even with a traumatic hematoma of the kidney. Page, by using a cellophane or silk capsule experimentally on the kidneys of dogs, has produced perinephritic scarring, thus causing slight constriction of the whole kidney and resultant hypertension. It would therefore appear that renal ischemia is not a necessary factor in the production of hypertension.

Page and others are of the opinion that certain chemical substances elaborated by the kidney are the real cause of clinical hypertension. These substances have been found in normal kidneys and in the peripheral blood, and they have been captioned renin (kidney pressor substance) and renin-activator (a pseudo-globulin-like substance found in the blood). These investigators seem to have demonstrated that renin alone is incapable of producing increased arterial tension whereas, when it is combined with renin-activator, a powerful vasopressor substance is thereby produced. This third substance has now been crystallized and has been called angiotonin.

Angiotonin has a number of physiologic properties which suggest that it may be the real cause of hypertension. Some of these properties are as follow: When injected into a normal man, it elevates pressure without reducing peripheral flow, and it seems to produce the same hydrodynamic changes within the kidney that are observed in clinical hypertension. Furthermore, it causes in the perfused heart increased force and efficiency of the cardiac impulse with coronary constriction and in vivo it produces a decrease in cardiac output and a rise in tension pressure with a decreased vital capacity. Its action is not controlled by the nervous system and it causes no clinical symptoms when injected into man other than those found in clinical hypertension. Moreover, both renin and angiotonin are found in the blood of patients suffering from hypertensive vascular disease.

Page has demonstrated also that normal kidneys contain a substance which neutralizes or inhibits the action of angiotonin. It is the opinion of Page and other workers that essential hypertension results either from an increased amount of renin activator in the blood or a decreased amount of renin-inhibitor. Page and his associates are now working on a therapeutic agent for the treatment of high blood pressure. Already they have prepared certain extracts which would appear to be efficient when used under carefully controlled conditions.

In conclusion, it might be said that the etiology of hypertensive vascular disease in the human being has not been solved; however, great strides are being made in this direction. The most convincing evidence which would seem to be applicable in explaining the majority of cases of idiopathic hypertensive vascular disease has resulted from the investigations of Goldblatt and Page.

St. Luke's Hospital.

Carelessness and ignorance are the only two reasons why any one should die from smallpox today, David Dietz, Cleveland, declares in the March issue of *Hygeia, The Health Magazine*. "There is complete and foolproof protection against the disease, a protection as simple as it is dependable," he continues. "It is, as everyone knows, vaccination. At the hands of a competent physician, it is 100 per cent safe, and it takes less than five minutes to perform."

ARTERIAL HYPERTENSION

DEFINITION OF NORMAL BLOOD PRESSURE

CLASSIFICATION OF ARTERIAL HYPERTENSION

J. V. BELL, M.D.

KANSAS CITY, MO.

Perhaps there is no more annoying problem to the medical profession than hypertension. To the patient it brings confusion, apprehension and sometimes hysteria.

Hypertension is more important than arteriosclerosis. Arteriosclerosis is often a normal accompaniment of changes incident to senility. Hypertension is abnormal in any case and may attack individuals in early life, middle age and old age. It is becoming more and more prevalent.

The most baffling problem in hypertension is that the cause of this condition, in the majority of cases, is unknown. However, it is apparent that minute, psychic or sensory stimuli can cause abnormal elevations of blood pressure in susceptible individuals. The other annoying phase of this condition is that the disease is chronic and progresses with varying degrees of rapidity.

The word "hypertension" has become a household word and high blood pressure has become a social topic which is freely discussed. In most any social gathering one may hear, "Have you had your blood pressure taken recently?," or, "I must have my blood pressure taken." I believe that the blood pressure should be taken as a routine in every examination regardless of age. McCracken believes that the tendency on the part of physicians to regard malignant or idiopathic hypertension as a disease of the "forties" may be due to the fact that blood pressure of younger persons is taken infrequently.

In the course of routine examinations, life insurance or otherwise, when abnormal readings are recorded, it is important that the physician make certain the true status before final confirmation that a hypertension exists. Quite often he may lay the foundation for an anxiety neurosis by attaching great significance to the observation. It is true a real hypertension may exist entirely free of symptoms. And, it is true that one may note an elevation of blood pressure when no real hypertension exists.

It might be well to answer quite briefly this question, "What is normal blood pressure?" It is obvious that one should know what normal blood pressure is to avoid giving wrong information and advice. Among the most common questions a physician is asked is "What is my blood pressure?" "Is that normal?"

Estimation of blood pressure now has an important place in diagnosis and prognosis. The sphygmomanometer is now a part of the equipment of every physician. Its use is so common that it is hard to realize how recent our knowledge of the subject really is. The first real attempt at clinical estimation of blood pressure was made by von Bosch (1887), but the problem was not really solved until 1896 by Rocci who introduced the circular air cuff.

The technic of recording blood pressure should follow a definite procedure. The patient should be sitting or lying comfortably, fully rested and free from excitement or tension. A mercury instrument is preferable as the aneroid type requires periodic correction. After the armlet has been adjusted, the end of the stethoscope is placed over the brachial artery in the antecubital fossa and air is pumped into the cuff. As the pressure is raised the beat disappears. When all sounds have ceased the air is gradually allowed to escape. The return of the beating sound indicates the systolic pressure. As the mercury continues to fall, the sounds become sharper and clearer, then suddenly become dull and fade (end of third phase). This point is taken as the diastolic pressure by British authorities. A little lower, usually about five points, all sounds disappear (end of fourth phase) and this value is recommended by American physicians as the diastolic. The procedure should be repeated a few times as the pressure falls somewhat during the course of the examination. The lowest values approach the resting levels and should be preferred as the true reading. It is sometimes found that when the systolic sounds reappear they are inconstant, varying with breathing. In this case the point at which the sounds become constant should be taken as the systolic pressure.

Factors influencing the blood pressure should be kept in mind. It is common knowledge that the blood pressure may be influenced profoundly by disease. It should be kept in mind that blood pressure is not fixed rigidly at certain figures but is constantly being readjusted to environment. Blood pressure is lowest when in sleep. It may be 20 points lower than when working. There is a slight rise after a meal. Blood pressures are higher in the afternoon than in the morning. Exercise affects the blood pressure in proportion to the degree of exertion. However, in mild exercise of short duration, a mild hypertension may show some fall. Prolonged and strenuous exertions produce the opposite effects. Fatigue reduces both systolic and diastolic pressures. Emotional disturbances, excitement and worry cause a blood pressure elevation. The emotional states are accompanied by an outpouring of adrenalin into the circulation and doubtless this affects the blood pressure. Mental

work may raise the blood pressure. There is not full agreement on the effects of posture, but the pressure is highest when the patient is in the erect posture.

To answer the question, "What is normal blood pressure?" is difficult. Yet, all through medicine similar questions are asked. One might as well try to answer "What is the height of a man?", "What is normal temperature?", "The rate of the pulse?" or "The duration of pneumonia?". The idea of variability is lost sight of and published average figures come to be regarded as fixed normals. Males up to age 40 run a slightly higher pressure than females; above the age of 40, females run slightly higher rates than males.

Obesity and hypertension are a bad combination. With 35 to 50 per cent overweight, there is a blood pressure elevation of from 0.1 to 6.2 mm., and the very thin individual tends to have a correspondingly lower blood pressure. Age is the most important factor which influences resting blood pressure.

The old axiom, "your systolic blood pressure should be 100 plus your age," considered to be correct in the early years of blood pressure recording is no longer acceptable. Accumulation of vast numbers of observations proved the effect of advancing years to be much less.

Many authors have published tables showing the average values of systolic and diastolic pressure at each age throughout life. Symond gives the systolic readings on 150,419 cases and diastolic pressure on 60,773, Hunter on 250,000 and Bordley and Eichna analyzed 545,000 cases. These form the basis of American standard. In these large series, the systolic rises to from 120 to 123 at age 20; to from 134 to 136 at age 60, and the diastolic from 79 to 80 to from 87 to 89. In Symond's material, the standard deviations for systolic ran from $\pm$ 7.18 to $\pm$ 10.40. In diastolic pressure the standard deviations are from $\pm$ 7.14 to $\pm$ 8.61. This gives a lower limit of about 110 while the upper limit increases from about 140 at age 20 to 152 in the fifth decade. A variation of 15 mm. from the average normal is satisfactory. In standard tables the pulse pressure runs from 43 to 49. The average values for four decades, from 20 to 60, are 47.1, 47.9, 48.5, 52.4 mm. Hg. A range of from 35 to 60 should include the great majority of normal cases.

Standard tables show that the blood pressure increases regularly between the ages of 20 and 60. The average values of the blood pressure at any age within this range can be obtained readily by the use of simple formulae. Several have been suggested. The simplest ones are: for the systolic, $\frac{age}{5}$ plus 120; $\frac{age}{3}$ plus 113, and 120 plus 1 mm. for every two years above the age of 20. For the diastolic, $\frac{age}{5}$ plus 75, or 80 plus 1 mm. for every five years over the age of 20. A tolerance of 10 per cent above and below the theoretic figures should include the majority of normal observations.

HYPERTENSION

A working classification (after Yater) follows.

1. Essential hypertension (primary arterial hypertension, hyperpiesia), 95 per cent of all cases of high blood pressure. The cause is unknown.

2. Secondary arterial hypertension. Etiology is acute glomerulonephritis; subacute glomerulonephritis; chronic glomerulonephritis; congenital polycystic kidney; severe bilateral pyelonephritis; toxemias of pregnancy; increased intracranial pressure; coarctation of the aorta; arteriovenous fistula; hyperthyroidism; acute regurgitation; complete heart block; systolic hypertension of the aged and some endocrine disorders.

3. Paroxysmal hypertension. Etiology is tumor of the suprarenal medulla or sympathetic nervous system connections with the adrenal medulla.

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TREATMENT OF HYPERTENSION

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Hypertension is a disturbance of function. Most functional disturbances respond to proper management. Hypertension is no exception. It may be due to demonstrable disease of the kidneys or other organs and many times the underlying pathologic process can not be determined. No matter what the cause, if the elevation of blood pressure is high enough and lasts long enough, it usually causes death of the patient by cerebral accident, heart failure or kidney failure. Long-continued hypertension produces hypertrophy of the media of the arteries throughout the body. In the kidneys, this encroachment on the arterial blood supply may produce further elevation of blood pressure. Therefore, treatment directed at reducing the abnormal arterial tension is not only justified but mandatory in the interest of the patient. Any physician who analyzes only the structural changes which could be shown at autopsy, decides that nothing can be done and slaps the hypertensive patient on the shoulder and tells him to "forget it," may rob that patient of years of life.

It has been debated that patients with hypertension are harmed by ever having had their blood pressure taken and the dangers of informing a patient of the presence of hypertension have been stressed. It is granted that an occasional patient with a highly unstable nervous system may be

frightened by his vision of a stroke or some other calamity discussed by the medical educators of the laity. The course of management of hypertension should be determined by the degree of elevation of blood pressure, an ordinary clinical analysis of the patient and a little common sense.

It is generally known that high blood pressure from any cause can be moderately, even strikingly, reduced by simple mental and physical rest.[1] Experience has convinced me positively that hypertensive patients in whom the extreme elevations of blood pressure are prevented by proper management are much less likely to have cerebral accidents, heart failure and kidney failure than are untreated cases.

The first step in the management should be to determine, if possible, the etiologic type of hypertension. A practical classification follows:

1. Demonstrable kidney disease causing hypertension.

2. Hypertension with no demonstrable kidney or other disease.

3. Hypertension due to non-renal disease.

Since Goldblatt's[2] experimental production of hypertension by renal ischemia, the relation of the kidney to hypertension has been subjected to a tremendous amount of investigation. The result, so far, has been that many cases which formerly would have been called essential hypertension now can be classified definitely as due to kidney disease. Chronic pyelonephritis and other causes of renal ischemia now are suspected more often and therefore more frequently recognized.

The diagnosis of pyelonephritis as a cause of hypertension is important because this disease may be treated by urinary antiseptics. In the occasional cases of unilateral pyelonephritis the diseased kidney may be removed and the hypertension cured.[3] The following case is an example.

CASE REPORT

Case 1. A 23 year old man was seen because of hypertension. He had had pneumonia at 10 followed in two weeks by chills, fever and pain in the left flank. At time of consultation he had had fever for six months with burning and frequency of urination which persisted. Blood pressure was 190/120. There was moderate tenderness to left kidney percussion. Urine contained pus and blood; pyelograms showed normal right kidney, hydronephrosis on left. Blood pressure fluctuated between 150/100 and 190/120. This case probably can be cured by left nephrectomy.

Paroxysmal hypertension in infrequent cases can be cured by removal of an adrenal tumor. Basophilic hyperplasia of the pituitary gland (Cushing's syndrome) is probably not a distinct clinical entity. Hypertension is associated with but is probably never due to the menopause.

In other than the rare case in which the cause can be removed, the treatment of hypertension can be planned by the employment of general measures and specific measures.

The most valuable general measure which can be employed is reduction of mental and physical strain. The degree of restriction of exercise is determined by the patient's condition and his occupation. In patients with severe hypertension and in those having headache, dyspnea, vertigo or other symptoms, bed rest may be necessary. In symptomless patients with moderate hypertension, moderate restriction may be sufficient. Mental strain should be reduced as far as possible in patients with extreme hypertension and, in the presence of symptoms, even to the point of avoiding contacts. Moderately high blood pressure without symptoms calls for reassurance and the elimination of situations known to produce emotional stress. Sedatives are helpful in blunting emotional reactions. The following case is an example of the effect of strain.

CASE REPORT

Case 2. M. A., aged 52, housewife, was high strung. She had a large family. She had expensive dental work and teeth were infected. She had had a slight cerebral accident in February 1939. Blood pressure was 270/150. She was hospitalized for five weeks. Sedatives were given. Average blood pressure during the following year was 150/100. Following the death of her daughter and an attack of erysipelas she resumed her activities but suffered a cerebral hemorrhage in August 1940. Autopsy showed stone in the left ureter, pyelonephritis of the left kidney and massive cerebral hemorrhage.

Obesity and hypertension are frequently associated.[4] Weight reduction by caloric restriction therefore is indicated. Restriction of protein, salt and water is not warranted. Coffee and alcohol in moderate quantities are not harmful. Excessive use of tobacco should be prohibited.

Physiotherapy with hot baths and massage may produce some relaxation. Venesection may be the one measure which will relieve the hypertensive headache. Patients who have experienced this relief often will request venesection as did the following patient.

CASE REPORT

Case 3. H. P., aged 60, male, had had a blood pressure of from 200/120 to 220/130 since 1931. He had severe early morning headache. He had had a massive hemorrhage from the bowel in 1932 and several severe nose bleeds and hemoptysis twice. After each hemorrhage he felt better. He has had venesection every one to four months since 1935. This patient returns when headache recurs and asks to be bled.

Sedatives such as phenobarbital, bromides and chloral are valuable for their depressor effect, their help in securing adequate sleep and their tendency to lessen emotional stress.

An ideal specific substance which would reduce elevated blood pressure to normal safely and keep it there permamently has not yet been discovered. There are, however, drugs which will cause definite reduction of blood pressure in most cases to below dangerous levels.[5]

Potassium thiocyanate[6,7,8] will lower blood pressure and relieve symptoms in at least 50 per cent of cases of hypertension. The dose is from 5 to 15 grains a day, best given as a solution of the powder in distilled water. Weekly determination of the

blood thiocyanate should be done until the dosage necessary to maintain a blood level of from 6 to 10 milligrams per 100 cc. is established. The drug may be given for years. Dermatitis and other toxic reactions are encountered occasionally.

CASE REPORT

Case 4. H. T., male, aged 40, complained of dizziness. Blood pressure was 225/130 and he was hospitalized for three weeks. Potassium thiocyanate, 9 grains a day, was given. Average blood pressure in the last six months has been 170/105. He has no symptoms and is working.

There are two excellent reasons for the use of potassium iodide. First it has been used by many physicians for many years because they obtained results and, second, in an occasional case striking reduction of blood pressure may occur when it is given.

CASE REPORT

Case 5. A. H., male, aged 63, had no symptoms. Weight was 215 pounds. Blood pressure was 230/125. No restriction of activities was made. Patient was told he had hypertension. Weight was reduced to 175 pounds. No medication except saturated solution of potassium iodide, 10 drops three times a day, was given. Average blood pressure for two years has been 160/90.

Veratrum viride,[9] according to many obstetricians, is the only drug which will reduce the blood pressure in toxemia of pregnancy quickly and effectively. In the emergencies of hypertension, the blood pressure can be reduced safely and markedly with this drug.

Nitrates and nitrites are of little practical value. Estrogenic hormone should be given for its effect on nervous tension in hypertension associated with the menopause. Thyroid extract occasionally seems to be effective in young hypertensive patients. Extracts of liver and pancreas are of no value. Recently a potent depressor substance has been extracted from the kidney. The safety and effectiveness in humans of these extracts have not been proved.[10,11]

CONCLUSION

1. Hypertension, purely a functional disturbance, is a frequent cause of death.

2. Most deaths from hypertension can be postponed or prevented.

3. There are effective methods for control of hypertension in a large percentage of cases and the welfare of the patient demands that they be used.

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MANAGEMENT OF HYPERTENSIVE HEART FAILURE

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Hypertension is the greatest single cause of cardiac symptoms and heads the list in the causes of heart failure. White[1] reports an estimate of 100,000 deaths annually in the United States as the result of heart failure due to high blood pressure. The commonest form of circulatory failure is that associated with failure of the left side of the heart. Failure of the left ventricle results from diseases in which the work of the ventricle is increased or its muscle diseased. These conditions include hypertension, mitral disease with regurgitation, aortic valve deficiencies and disease of the coronary arteries of the left ventricle.

Hypertension produces increased work for the left ventricle with resultant hypertrophy and often concomitant coronary circulation insufficiencies. Such states represent hypertensive heart disease which tends to be a progressive condition leading, sometimes rapidly but usually slowly, to congestive heart failure.

There are three types: (1) isolated left ventricular failure, (2) combined right and left heart failure, and (3) the rare isolated right ventricular failure.

Flaxman,[2] in making a clinical study of the types of heart failure in 594 patients with definite, uncomplicated hypertensive heart disease, found isolated left ventricular failure in 26.5 per cent, combined right and left sided failure in 72.5 per cent and isolated right ventricular failure in 1 per cent.

The management of hypertensive heart failure should be instituted vigorously at the beginning of the slightest evidence of myocardial insufficiency. The greatest good can be accomplished long before disabling and disastrous failures occur. Early and isolated insufficiency of the left side of the heart is characterized by symptoms and signs resulting from pulmonary engorgement. These symptoms and signs are reviewed briefly.

Dyspnea on walking, talking or other moderate exertion is the most frequent early evidence of left ventricular insufficiency and persists as long as the right ventricle remains functionally adequate.

Paroxysmal cardiac dyspnea, nocturnal dyspnea with or without asthmatic breathing (the so-called cardiac asthma) and acute pulmonary edema are all evidences of at least temporary left ventricular inadequacy and may be the first symptoms observed by the patient although most will have experienced shortness of breath previously.

Orthopnea generally accompanies exertional and paroxysmal dyspneas. Cough, expectoration, cyanosis and hoarseness also may be present. Cardiac pain may or may not be present but is frequently the symptom that brings the patient to the physician. Physical findings may be entirely normal even when quite severe symptoms of left ventricular failure are present, but moist rales at the bases, diminished vital capacity, varying degrees of emphysema and roentgen evidence of congestion are likely to be encountered.

Many hypertensive patients die during the stage of isolated left heart failure of coronary thrombosis, cerebral hemorrhage or thrombosis, acute pulmonary edema, bronchopneumonia and other complications, but a larger number develop insufficiencies of the right side of the heart.

The stage of combined left and right sided ventricular failure is characterized by the development of systemic congestion in which venous distention, edema, enlarged and tender liver, ascites, hydrothorax, oliguria and cyanosis may all occur.

The dyspnea and orthopnea which were the predominating symptoms during the period of isolated left heart failure often completely disappear or are markedly alleviated and patients with nocturnal dyspnea, and even anginal pains, may be considerably or entirely relieved of these symptoms with the appearance of systemic venous engorgement.

The isolated right ventricular failure usually is characterized by epigastric pain and signs of systemic congestion.

The management of patients with heart failure with hypertension is largely symptomatic. Since one has at his disposal only limited means for combating the underlying hypertension, one must, in the treatment of cardiac insufficiency, follow the same general principles as in the treatment of heart failure.

Emphasis should be placed upon the fact that the presence of hypertension does not in any way contraindicate the usual measures employed in the treatment of cardiac complications; for example, morphine for coronary thrombosis, cardiac asthma and acute pulmonary edema; digitalis for myocardial failure; digitalis or quinidine for auricular fibrillation; or the nitrites for angina pectoris.

Therapeutically, a great deal can be done for these patients. When evidence of left ventricular insufficiency is observed, a vigorous routine must be established. The treatment of left heart failure in hypertension is identical to the treatment of hypertension plus those measures which are designed to return the failing myocardium to as near a normal reserve as possible.

A great deal of thought should be given each individual patient. Some may require only a routine of modified activity and supplementary daily periods of rest; others may require a period of absolute bed rest. Obese individuals should have cautious weight reduction for it is to be remembered that every ten pounds of fat adds approximately one mile of circulatory distance. Excessive physical and mental strain should be avoided. The physician should advise graded exercises and concern himself with even the patient's recreational activities. The removal of focal infection, the attention to diet and vitamin therapy—in fact, all measures leading to an improvement in the patient's general health—are of the utmost importance.

The administration of digitalis is often of great value. Hypertension and coronary arteriosclerosis do not contraindicate its therapy. Indications for the use of digitalis frequently may be overlooked because these patients may have a regular rhythm and tachycardia may not be marked. Individuals who have been incapacitated by exertional dyspnea have improved sufficiently under the administration of digitalis to return to their occupations. Many have thus taken the drug for years only to find dyspnea exaggerated upon its withdrawal. Attacks of paroxysmal cardiac dyspnea may be alleviated or abolished by digitalis.

Hypertensive patients with left ventricular failure are always threatened with three serious complications of pulmonary engorgement; namely, pulmonary edema, pulmonary infarction and bronchopneumonia. The common emergencies are paroxysmal dyspnea and acute pulmonary edema. These manifestations of left ventricular failure may prove to be difficult therapeutic problems.

Patients who are subject to paroxysmal nocturnal dyspnea should have a light supper with little fluid and should not eat or drink before retiring. Bed rest, salt and fluid restriction and the administration of digitalis may be advisable. Small doses of codeine at bedtime are sometimes employed. Xanthine or mercurial diurectics are not infrequently of assistance in relieving the pulmonary engorgement.

If paroxysmal dyspnea is accompanied by pulmonary edema, the situation is serious and the early administration of morphine is imperative. The favorable response to morphine is often imme-

diate; dyspnea, cough and expectoration cease and rales gradually disappear. The slow intravenous administration of from 3½ to 7½ grains of aminophylline in saline, or added to hypertonic glucose, frequently produces spectacular results in both conditions. The use of oxygen, the intravenous injection of digitalis or strophanthin and venesection are all worthy of employment if other measures have failed.

The management of right ventricular failure, with its attendant symptoms and signs of systemic venous congestion, demands the usual routine of bed rest, digitalis (or allied drugs), diuretics and proper diet, climate and altitude.

Bed rest and digitalis therapy are usual procedures. Auricular fibrillation may call for quinidine therapy. Gallop rhythm is a serious sign and pulsus alternans is of grave prognostic significance. It should be borne in mind that even in the presence of these serious arrythmias, with right or left heart block, during coronary thrombosis, when progressive myocardial insufficiency is present, digitalis still remains the drug of choice. It should be emphasized, however, that rest, morphine, oxygen and glucose remain in the first line of defense.

The exact level of the blood pressure is by no means the important criterion of the patient's progress. What the heart is doing is of greatest importance. Although the left side of the heart is failing, the arterial pressure may remain high or be actually increased through vasoconstriction from arterial ischemia. Thus frequently a fall in blood pressure does not accompany a failing myocardium.

When hypertension accompanies congestive heart failure, the level of the blood pressure usually falls as improvement takes place on rest in bed and digitalis. If the blood pressure does not fall while the patient with hypertensive heart failure is under treatment, it generally indicates that improvement in the heart is not being attained. This relationship is mentioned because there still prevails the idea that when the heart improves it manifests this improvement by an increase in blood pressure.

When symptoms of pulmonary and general systemic congestion in heart failure are not relieved by rest, digitalis or dietary management, diuretics may be of considerable assistance.

The object of diet in both hypertension and in heart failure is the reduction of cardiac strain. The diet in cardiac decompensation should provide a relatively low protein content, usually not in excess of 60 grams, a relatively high amount of easily assimilated carbohydrates for cardiac nutritional value and energy and sufficient fat for necessary caloric needs. Feedings should be frequent and small and when edema is present, salt should be restricted markedly. It has been observed that if salt intake is sufficiently restricted in cardiac edema, fluid restriction does not usually prove necessary. When the heart disease is associated with obesity, the reduction of weight is important.

Patients suffering from hypertension have been observed to have lower blood pressures in summer than in winter. The cold pressor test of Hines and Brown readily demonstrates the changes of blood pressure that may occur from sudden changes of temperature. Patients find it easier to breathe at sea level where the oxygen content of the air is highest. Here also alveolar pressure is increased and anoxemia more easily relieved. A subtropical climate with moderate humidity and a low altitude afford, therefore, the best environment for the treatment of hypertension and myocardial disease.[3]

Cheyne-Stokes breathing occurs most commonly in patients with hypertensive and arteriosclerotic heart disease. Its occurrence during waking hours may be indicative of serious circulatory failure. Oxygen may diminish the intensity of the apneac and dyspneac phases. Carbon dioxide inhalations may produce regular breathing for a time. The intravenous injection of 3½ grains of aminophylline is sometimes effective in at least temporarily abolishing Cheyne-Stokes breathing. Wendkos and Robertson[4] recently have recommended caffeine alkaloid and sodium iodide (iodized caffeine) in the treatment of either paroxysmal nocturnal dyspnea or Cheyne-Stokes respiration secondary to left ventricular failure.

Effective treatment of heart failure depends upon the early recognition of myocardial insufficiency. The therapeutic objective is to be attained, whenever possible, by careful attention to the hygiene of living. The value of bed rest must not be minimized. Myocardial reserve bought by drugs at the expense of all other measures must not be tolerated.

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A warning that the treatment of ganglion, a saclike tumor on a tendon, by injection of caroid, a vegetable pepsin, is a dangerous procedure is sounded by J. Albert Key, M.D., St. Louis, in *The Journal of the American Medical Association* for February 14.

He reports the case of a patient with a ganglion on the back of her wrist into which was injected caroid and the resulting liquefied material subsequently withdrawn by suction in accordance with the procedures recommended in such use of caroid. Infection, however, developed and the patient now has a definite disability of the hand. Dr. Key says the caroid used was found to be heavily contaminated, as were two other samples of the material obtained elsewhere. He says he does not believe the sterilization of the product as recommended by the manufacturer is adequate for material which is to be injected into tissues. "If it cannot be sterilized completely without destroying the enzyme, it should not be sold for injection or implantation in wounds," Dr. Key declares.

TUMOR CELLS IN BODY FLUIDS

AN EVALUATION OF DIAGNOSIS

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The microscopic recognition of free neoplastic cells in the sediments of centrifuged pleural and peritoneal fluids has provided a useful aid in the diagnosis of both primary and metastatic tumors involving the surfaces of the serous cavities. However, difficulties may be encountered in arriving at the correct interpretation of the nature of the cells present in the effusions. Only within the last few years, following the development of a standard technic and reliable criteria for the diagnosis of neoplastic cells, has it become possible to interpret the findings with confidence. Even at the present time published studies indicate that there is a difference of opinion among investigators concerning the reliability of certain criteria used for differentiating benign and neoplastic cells present in fluids. Because of this lack of unanimity of opinion this study was undertaken to test, first, the validity of the proposed criteria and, second, the usefulness of the procedure.

Although tumor cells have been identified in body fluids for many years, all of the early studies dealt with wet preparations or smear preparations. As early as 1860, Beale[1] observed large multinucleated cells in unstained smears of sputum from a patient with a carcinoma of the pharynx. In the following years, several single cases and a few series of cases were reported in which serous effusions were examined for tumor cells by smears or by wet preparations. Many different criteria for the diagnosis of malignant cells were postulated and opinion was varied as to the certainty with which a correct diagnosis could be made. Today many pathologists use some variation of an essentially similar method which appears to have been devised independently by several investigators. In 1917, Mandlebaum[2] published such a technic and the procedure is sometimes referred to as the "Mandlebaum test."

The method devised by Mandlebaum and later modified by Zemansky[3] consists in allowing the collected fluid to settle by gravity over night in a large Erlenmeyer flask. The clear upper layer is poured off and the sediment concentrated by centrifuging it in a tube with a tapering point. The supernatant fluid is carefully removed and the sediment is covered with 10 per cent formalin for twenty-four hours. By that time the sediment is converted into a hard button-like mass which is separated from the sides of the tube. The mass of sediment is bisected vertically so that all layers will be included in a section. The two halves are treated as routine fixed tissue and paraffin sections are prepared.

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The technic that I have used differs in three ways. First, enough formaldehyde is added immediately to the specimen of fluid to make a 4 per cent solution of the fixative. The immediate addition of the formaldehyde prevents both bacterial growth and cell degeneration. Second, the specimen is centrifuged soon after the addition of the formaldehyde. Third, since there is a tendency for the block of sediment to crumble if sectioned immediately after fixation by formaldehyde, this step has been deleted but the entire mass of sediment is cut in the vertical plane when the paraffin sections are prepared.

The present report is based upon a study of sixty-five routine diagnostic fluids obtained from fifty-six patients. Paraffin sections were prepared and stained with hematoxylin and eosin. In most instances several consecutive sections were made. The sections were examined solely on a morphologic basis without knowledge of the history of the patient or of the cavity from which the fluid had been removed. Each specimen was recorded either as "positive for tumor cells" or as "negative for tumor cells." All the criteria which might be considered of possible significance for judging the presence or absence of tumor cells were listed on a chart. The criteria were recorded as plus or minus on each fluid. The following criteria were utilized: mitoses, abnormal mitoses, large nuclei, large or small nucleoli, multiple nuclei, position of the nucleus, irregularity of cell outline, vacuolization of the cytoplasm, acini, papillae, clumps of cells, fibrin and red blood cells.

The results are recorded in tables 1 and 2.

Table 1. *Summary of Specimens Reported Positive*

	Peritoneal Fluid	Pleural Fluid	Total
Total patients	23	33	56
Total specimens	29	36	65
Total reported positive	10	8	18
Proved correct[1]	4	2	6
Presumed correct[2]	3	6	9
Proved incorrect[3]	1	0	1
Unknown[4]	2	0	2

Table 2. *Summary of Specimens Reported Negative*

	Peritoneal Fluid	Pleural Fluid	Total
Total patients	23	33	56
Total specimens	29	36	65
Total reported negative	19	28	47
Proved correct[1]	9	6	15
Presumed correct[2]	5	10	15
Proved incorrect[3]	3	0	3
Presumed incorrect[2]	1	10	11
Unknown[4]	1	2	3

1. Diagnosis established by examination of body cavity at operation or autopsy or by the identification of a specific etiologic agent in the cavity fluid.
2. Diagnosis established by biopsy of malignant tumor in the patient or by roentgen ray examination or by palpation of a mass when considered with the clinical course.
3. Diagnosis established by the results of laboratory tests when considered with the clinical course.
4. The exact nature of the disease was not established.

DISCUSSION

The results of the examination of the sixty-five fluids have been summarized to indicate the method

by which the correct diagnosis ultimately was established. The diagnosis of "negative for tumor cells" on fluids obtained from patients who subsequently were proven to have neoplastic disease deserves further comment. In two cases, one a primary carcinoma of the liver and the other a primary carcinoma of the pancreas, the peritoneum was free from metastases at autopsy. In both instances the ascites was associated with the presence of a neoplasm but in neither instance was it a manifestation of metastases to the peritoneum. Obviously, an examination of ascitic fluid from these two cases could not reveal the presence of a tumor which did not involve the peritoneum and the diagnosis of "negative for tumor cells" was actually correct for the specimen examined. In another case, a single examination of ascitic fluid failed to reveal the presence of identifiable tumor cells although an autopsy revealed a neoplasm involving the peritoneum.

Eleven specimens of fluid were obtained from patients who showed evidence of the presence of a neoplasm but in whom an anatomic examination of the body cavities was not available. The reports on all of these fluids were "negative for tumor cells." However, it is entirely possible that the fluid present in the body cavities of some of these patients was also the result of some mechanism other than the direct involvement of the peritoneum by tumor.

Thus, in any analysis conducted to judge the accuracy of the test, it is necessary not only to know whether a neoplasm was present in the patient but also to know whether the serous surface of the particular body cavity from which the fluid was withdrawn was involved by the tumor. Even though a patient has a neoplasm, tumor cells can not possibly be identified in fluid obtained from a cavity which is not involved by the neoplasm.

The lack of standard criteria for the determination of the presence of tumor cells in body fluids and the variation of methods used by different authors in reporting their results make statistical comparisons difficult. However, an analysis of the various criteria in regard to their diagnostic value shows a general acceptance of some and a disagreement as to the value of others.

In 1928, Zemansky[3] studied the results of 159 examinations of fluid obtained from 113 cases. These results were verified by autopsy, exploratory operation or biopsy. Zemansky's criteria used for judging a fluid positive for neoplastic cells were (1) fragments of tissue with a definite arrangement of cells and stroma, (2) multiple groups of large, deeply staining cells, giving the slide a mottled appearance, (3) finer cellular changes such as extreme irregularity of cell outline, eccentricity of nucleus, extremely large size of nucleus, multinucleation and typical or atypical mitotic figures. His positive diagnosis carried with it a high degree of accuracy (90 per cent) but his negative diagnosis a low degree (47 per cent).

Foot[4] in 1937, in an attempt to improve his diagnostic criteria, compared the results obtained in a series of cases when diagnosed on a general morphologic basis and when diagnosed solely by measuring the nucleolar-nuclear ratio. He accepted Zemansky's criteria, the presence of tumor fragments, the occurrence of irregularity in the size and shape of the nuclei and the presence of large and bizarre forms or atypical mitotic figures, as evidence of neoplasia. However, he refused to accept as evidence of neoplasia the presence of hyperchromasia, large and deeply stained nuclei, multinucleation, mitotic figures or acinar like arrangement of cells, changes which he believed might be presented by exfoliated mesothelial cells in fluids of long standing. In a personal recheck utilizing only verified cases, Foot was correct in 60 per cent of the positive ascitic fluids and by using the nucleolar-nuclear ratio alone he was correct in 72 per cent. For the positive pleural fluids, the recheck gave 53 per cent correct diagnosis and the use of the nucleolar-nuclear ratio alone 81 per cent. For the negative pleural and ascitic fluids the recheck showed 75 per cent correct diagnosis in each instance; the nucleolar-nuclear ratio showed correct diagnosis of 58 per cent and 62 per cent respectively. Thus, by using the nucleolar-nuclear ratio alone he obtained a degree of accuracy equivalent or greater than that obtained on a morphologic basis. By either or both methods his degree of accuracy for positive fluids fell far below those of Zemansky's but his results with negative fluids were appreciably more accurate.

Quensel[5,6] using the diameters and Karp[7] using the areas have stressed the point that the ratio of nuclear to nucleolar size is high in cells of malignant tumors. Thus, these two are in agreement with Foot. McCarthy[8] for several years has stressed the difference in the nuclear-nucleolar area ratio of malignant and hyperplastic cells observed in unfixed tissue. This is just the reverse of the nucleolar-nuclear ratio but gives the same ultimate results. Haumeder and McCarthy[8,9] found the ratio of nucleus to nucleolus for the cells of regenerative breast to be 17 to 1 and for the malignant cells 11 to 1, whereas, Naidu[8,10] working with similar organs in the same laboratory found the nuclear-nucleolar ratio for the cells of regenerative breast to be 21 to 1 and for malignant cells 17 to 1. Thus, according to one investigator, a nuclear-nucleolar ratio of 17 to 1 indicated a malignant cell and according to the other a regenerative cell. Guttman and Halpern,[11] examining malignant and hyperplastic cells in tissue fixed in Zenker's solution, proved to their own satisfaction that there was no appreciable difference in the nuclear-nucleolar volume ratios of the two types of cells. Most of the verified negative fluids studied by Foot showed a nucleolar-nuclear ratio below .20, whereas most of the verified positive fluids showed a ratio above .25. On the other hand, the group of fluids with cells having a ratio between .20 and .25 was

not so clearly defined and it was this group that was also difficult to diagnose on a morphologic basis. It would appear from these studies and from those on other tissues that the nucleolar-nuclear ratio is of least value in that group of fluids which is also most difficult to diagnose by a morphologic study of the cell. Although the nuclear-nucleolar ratio was not measured in the present series, it would seem that large nucleoli are of diagnostic value only when associated with other changes such as irregularity in size and shape of cells and nuclei. The determination of the nucleolar-nuclear ratio in one of Foot's cases suggested that the cells were malignant and additional sections of the specimen demonstrated definite neoplastic cells which were not present in the original section. In order to reduce the possibility of missing malignant cells because the material observed was insufficient, I have frequently made step serial sections. In several instances, neoplastic cells were present in some sections and not in others. It, therefore, would appear that the chances of finding tumor cells are greatly enhanced by the preparation of several sections. Sections which do not contain tumor cells may be discarded and the slides and cover glasses salvaged.

Mitotic figures in this series occurred in six of six cases verified as positive for the presence of a neoplasm but were also encountered in three of sixteen cases verified as negative. This is in agreement with the conclusion of Foot and in disagreement with the findings of Goldman[12] and of Graham.[13] However, atypical mitotic figures were noted only in cases verified as positive.

Fragments of tissue showing an acinar or papillary arrangement of cells, together with a connective tissue stroma, were present in four of the six cases verified as positive for tumor cells. However, acinar-like structures or cell clumps unaccompanied by a connective tissue stroma were present in six of sixteen fluids obtained from verified cases of non-neoplastic disease. (Figure 1.) These cell patterns should not be regarded as evidence of neoplasia unless associated with other changes such as definite irregularity of cellular and nuclear outlines and large nucleoli. (Figure 2.)

Graham has stressed the importance of the presence of tumor giant cells and in this series such cells were noted only in cases verified as positive. However, multinucleated cells apparently of mesothelial origin are common and must be differentiated from tumor giant cells.

Vacuoles occurring within the cytoplasm of cells and in some instances associated with an eccentric nucleus were present in an indiscriminate manner in both positive and negative fluids. They are of little value as an aid in differentiating malignant and benign cells.

Red blood cells and fibrin were present in both verified positive and negative fluids and carry no import. Indeed, at times much of the section was comprised of red blood cells or fibrin. From this fact, it would seem that a modification of the technic such as that used by Foot would be of value. Foot recommends that acetic acid be added to make a 2 to 3 per cent solution, thus laking the red blood cells and preventing the formation of a fibrin clot. This would permit a greater number of cells to be examined.

CONCLUSIONS

1. The examination of the sediment of fluids from serous cavities is a useful procedure for determining the presence of a neoplasm.
2. A report of "tumor cells present" should carry with it a high degree of accuracy.
3. A report of "no tumor cells present" is of less diagnostic value.

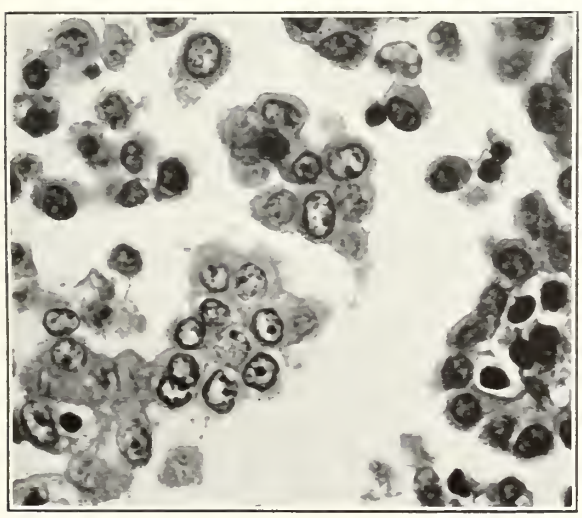


Fig. 1. Sediment of a peritoneal fluid from a case of nodular cirrhosis of the liver. The cells are arranged in clumps and acini but are uniform in size, shape and cytologic features. Other sections show mitotic figures. The diagnosis was incorrectly reported as "Tumor cells present." X 610.

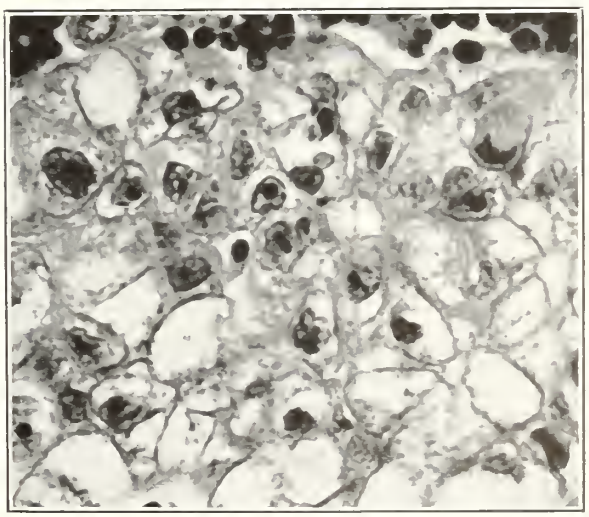


Fig. 2. Sediment of a pleural fluid from a case of carcinoma of the stomach with metastases to the pleura. The cells are not only arranged in a clump but also show definite irregularity of size, shape and occasionally large nucleoli. Other sections show atypical mitotic figures. X 610.

4. Fragments of tissue composed of stroma and acini or papillae are indicative of malignant cells.

5. Atypical mitotic figures and bizarre multinuclear cells are indicative of malignant cells.

6. Desquamated cells from the lining of the serous cavities may be confused with tumor cells. Cells arranged in clumps or acini should be accepted as tumor cells only when they exhibit pronounced pleomorphism.

7. Both positive and negative fluids may contain cells in mitotic division, cells with vacuoles, red blood cells and fibrin.

Euclid and Kingshighway.

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A. M. A. JOURNAL REPORTS THE FORMATION OF AUSTRALIAN-AMERICAN ASSOCIATION

The formation of an Australian-American Association is reported in *The Journal of the American Medical Association* for February 7 by its regular Australian correspondent.

He says that the movement toward forming the Association "was initiated by a body of Australian citizens in the belief that the ideals and outlook on life of the peoples of America and Australia are so closely allied that it needs only a thorough knowledge of each other to achieve mutual respect and full understanding of each other's point of view; that the future peace, freedom and prosperity of the Pacific largely depend on the achievement of such an understanding and friendly regard between these two peoples, and that the close friendship of the vigorous democracies of the New World may well be the decisive factor in reestablishing the principles of freedom in a threatened civilization.

"The Australian-American Association has as its objects (1) to extend fellowship and hospitality to American visitors to our shores and to afford them facilities for obtaining an immediate knowledge of Australia, (2) to contribute to a better understanding by the Australian public of American affairs and point of view and (3) to attract in active membership citizens of both countries who will contribute to the furtherance of practical cooperation and mutual understanding."

SPECIAL ARTICLES

THE BARNARD FREE SKIN AND CANCER HOSPITAL RESEARCH REPORT FOR 1941

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ST. LOUIS

The results summarized in this report are described fully in papers published in 1941 reporting work done wholly or partly in the Barnard Hospital. Reference is made also to the contents of the Barnard Hospital Lecture by a distinguished visitor published in the same year, to changes in the full time research staff and to the integration of research activities.

But investigations by members of the staff are not all carried on in the Barnard Hospital. Some are done in other institutions to which they are also attached. These are included in the list of scientific contributions given at the end of this report and are marked with an asterisk. The object of making this list as complete as possible is that otherwise it would not adequately indicate the research activities of the whole staff of the hospital wherever they may work.

A major project in dermatology, nearing completion, deals with neurodermatitis. This is a distressing inflammatory condition of the skin which comes and goes. It is of unknown causation and difficult to cure. Investigations, reported in a preliminary way in 1940, have now been described in detail by Drs. R. C. MacCardle, M. F. Engman, Sr. and Jr., in two papers. The concluding paper is in press. They have presented spectrographic evidence that this disease, also known as chronic disseminated neurodermatitis, is characterized by a marked cutaneous magnesium deficiency. Though they are unable to distinguish positively histologically between neurodermatitis and contact dermatitis, chronic dermatitis and localized neurodermatitis (lichen simplex chronicus), the three last named conditions do not exhibit this peculiar deficiency in magnesium. The blood of patients suffering from neurodermatitis contains the usual amount of magnesium. Attempts to restore the magnesium level in the skin to normal have not been successful. Consequently resort is being made to animal experimentation in the quest for clues. To bring about a magnesium deficiency in rats is a task for experts. It is being done in the nutrition laboratories of the Ralston Purina Company. The tissues are studied histologically and chemically in the anatomic laboratory of Washington University and radiologically by Dr. L. R. Boling in the Washington University School of Dentistry.

A recent method for the isolation and cultivation of pathogenic agents is to make a window in

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Presented at the Annual Meeting of the Barnard Hospital Association, January 26, 1942.

the shell of an incubating hen's egg and to inoculate the chorioallantoic membrane of the contained chick embryo with the suspected material. That Dr. Morris Moore was at work along this line was reported last year. During 1941 he has published three papers describing the successful cultivation of numerous pathogenic fungi and mycobacteria—several of them for the first time. His investigations with human tubercle bacilli have attracted particular attention, as a result of which he has received a grant from the Committee on Medical Research of the National Tuberculosis Association to enable him to investigate the phenomena of virulency and invasiveness.

The main long-term experimental cancer research program, described in the 1940 report, has been considerably advanced. It consists essentially of an effort to discover the changes that cells undergo when they become malignant. To simplify the experimental conditions epidermal cells were chosen because they are more easily observable than deep lying cells; mice were selected because those of so-called "pure strains" resemble each other very closely; and methylcholanthrene was employed because it can be obtained in pure form and is a powerful carcinogen. The plan is to investigate the properties that can be measured quantitatively in order to build up data about those that change, or remain unaltered, during the malignant transformation.

The basis has been laid by Drs. W. Cramer and R. E. Stowell who have studied the dosage, the time of appearance of the lesions and their general morphology. Since all of the properties cannot be determined in one and the same specimen, even if its structure were constant throughout its extent which is never the case, it is essential to standardize this particular process of carcinogenesis as closely as possible. A considerable amount of individuality in the response of mice of the same sex belonging to the same litter cannot be eliminated. Success in the integration will be proportional to the similarity that can be achieved in the series of mice employed for different kinds of determinations. In the printing of a lithographic picture many different plates must exactly register. In this sequence the properties determined likewise must be superposed for each of the principal stages so that in the end one will have what will amount to a motion picture of the events. To make the picture complete for any stage will, of course, be impossible but it will increase in value with the number of properties accurately measured that are included.

Drs. Cowdry and Paletta have provided data on alterations in cellular, nuclear and nucleolar size during carcinogenesis. It is worthy of note that nucleolar size, when considered alone, is not, as some authors state, a reliable criterion for assumption of malignancy. Using an ultracentrifuge, Drs. Cowdry and Paletta discovered that during carcinogenesis there is a marked and sudden decrease in intranuclear viscosity when the epidermal cells become invasive and malignant. This decrease is measured by an increase in the displaceability of nucleoli and basophilic chromatin. Comparison of normal human epidermis with squamous cell carcinomata showed that the intranuclear viscosity of the latter is correspondingly low. Urine analysis of the mice, made by Mr. Wicks, revealed the surprising fact that proteinuria in mice is a sex linked phenomenon, very much more marked in normal males than in females. This observation is mentioned because it illustrates the fact that investigation of the series is not conceived narrowly but includes much besides the epidermis.

Drs. Paletta, Cowdry and Lischer have compared in mice epidermis rendered very hyperplastic with methylcholanthrene and therefore precancerous with hyperplastic epidermis at the edges of healing wounds which is by contrast benign. Local variations in mineral content were seen in the former but not in the latter. It is expected that others in the laboratory will continue the search for criteria of premalignancy.

The clinical staff of the hospital has been indefatigable in the search for improved methods. The records of the hospital extending backward for many years and covering a wide variety of cases provide an unsurpassed basis on which to build. Continuity in this search is often apparent. Thus Dr. Louis H. Jorstad's critical review of treatment of cancer of the penis is a logical extension of previous investigations by Dr. Leighton. Dr. Jorstad also has contributed valuable data on diagnosis and treatment of malignant lesions of the head and neck and on the treatment of lingual cancer, the *bete noir* of smokers. Since cancer of the esophagus carries an extremely bad prognosis, early recognition is imperative. Drs. J. B. Costen and W. T. K. Bryan have, in a clear way, considered the points one by one that are significant in its diagnosis. Dr. W. E. Leighton has described a new incision for radical operation in breast cancer which conforms better to the natural tension lines of the skin and has other advantages.

In the gynecologic field particularly advances have been made. Dr. A. N. Arneson has, in two papers, stressed the need for studying each patient with cancer of the cervix as an individual and has suggested methods of treatment to reduce infection and prevent excessive radiation necrosis. With Dr. Harry Hauptman, he has described a method of using multiple capsules in order to improve distribution of radiation. Certain important safeguards in the radiologic management of cancer of the cervix have been presented by Dr. E. C. Ernst. An etiologic study of cancer of the vulva by Dr. Fred J. Taussig has served to identify some precancerous lesions which, if promptly removed, may lead to an appreciable lowering in the incidence of vulvar cancer. Dr. Taussig has continued this investigation of the effects of surgical ablation of the immediate tributary chain of lymph nodes de-

scribed in last year's report on research. In cervical cancer the presence of lymph node metastasis reduces the prospect of cure by 50 per cent. In cancer of the vulva, however, if the complete Basset operation is done, the expectation of cure varies only 11 per cent.

ANNUAL BARNARD HOSPITAL LECTURE

In the second Barnard Hospital Lecture by Dr. Carl Voegtlin, the latest information on the "Possibilities of Improved Therapy for Cancer Patients" was published in 1941.* By virtue of his experience as Chief of the National Cancer Institute of the United States Public Health Service, Dr. Voegtlin is better qualified to sift fact from fiction and to look into the future than any one else. This lecture affords instructive reading for it deals to a large extent with the curative possibilities of the new cyclotron at Washington University and of radiotherapy in all of its aspects.

In respect to roentgen and radium therapy, Dr. Voegtlin expressed the view that attempts to enhance the roentgen ray efficiency by adjuvant therapy may be helpful. In his opinion "perhaps the most daring and yet promising attempt would be to alter the tissue metabolism by change in diet, or by the administration of chemicals, in order to increase the radiosensitivity of the cancerous, relative to that of normal tissues." He did not think that any great advantage can be expected from supervoltage roentgen ray therapy or from radiowave exposure.

Fast neutrons, he explained, produce much more concentrated ionization tracts than roentgen ray or gamma rays and have a high penetrating power. Time will be required to assess their value in cancer therapy. He expressed the opinion that slow neutron therapy might well yield results of practical value if the neutrons could be captured by the previous injection of nontoxic substances like boron and lithium which would be absorbed selectively by the malignant cells. But he cautioned that it is too early to say whether the treatment of leukemia with radiophosphorus is better than the customary treatment with roentgen ray.

Radiotherapy and surgery are essentially local methods. Systematic treatment by alterations in the whole body is only beginning at present in experimental animals. Thus, removal of lysine and cystine from the diet inhibits certain kinds of tumor growth. Stimulated by the fact, recognized in 1882, that erysipelas occasionally has an apparently curative effect on certain malignant tumors, many studies have been carried out with bacterial filtrates. That of B. prodigiosus produces sharply localized hemorrhages within sarcomata of animals which leads to a marked but temporary regression. The hemorrhagic factor appears to be associated with a bacterial polysaccharide and will act in extraordinarily high dilution. But carcinomata are not affected. If a sufficiently wide margin of safety can be achieved between the toxic and hemorrhage-producing doses, Dr. Voegtlin stated, the method may have practical therapeutic value. He mentioned, also, that chemotherapy of cancer is not an impossible goal.

*The third Barnard Hospital lecture delivered by Dr. J. B. Murphy of the Rockefeller Institute for Medical Research on November 18 in the Auditorium of the St. Louis Medical Society on "An Analysis of Trends in Cancer Research" will be described in the next report covering 1942, the year in which it will be published, since it is our policy to confine each report to papers actually published in the year under review.

CHANGES IN FULL-TIME RESEARCH STAFF

On July 1, Dr. F. X. Paletta, who had served for two years as Research Fellow, resigned to accept an attractive appointment in surgery at the University of Virginia. At the same time Dr. P. E. Neilson of the University of Wisconsin was appointed Research Fellow and Dr. Valentina Suntzeff, an associate of Dr. Leo Loeb, was appointed Research Associate. On February 18, Dr. J. P. Baumberger, Professor of Physiology at Stanford University on leave of absence, was appointed Research Associate. As a trained physiologist and an expert in polarographic analysis, he contributed greatly to the research activities before his resignation on December 31 to resume his duties at Stanford.

INTEGRATION OF RESEARCH

As in past years, this expands from within outward. Central integration is provided by regular weekly meetings of the full time research staff held throughout the year. Since, to be effective, laboratory investigation and clinical study must go hand in hand, wherever possible, for they are mutually supportive, the full time and clinical staffs meet every two weeks from September to June at conferences arranged by the latter. Monthly evening research conferences, during the same period, supply helpful integration between both hospital staffs and their friends in the metropolitan area. At each of these evening conferences two short papers are presented and refreshments are served. In 1941 participation by visitors was particularly gratifying. The hospital acknowledges with thanks stimulating discussions led by Drs. G. H. Scott and Henry Schwartz of the Department of Anatomy, Willard Allen of the Department of Obstetrics and Gynecology, Ernest Sachs of the Department of Surgery, Lawrence T. Post of the Department of Ophthalmology, Felix Deutsch of the Department of Neuropsychiatry, of Washington University Medical School, and Drs. F. O. Schmitt and Viktor Hamburger of the Department of Zoology of Washington University, and Dr. Sam Gray, pathologist at Jewish Hospital.

Cooperation with Washington University has increased in ways too numerous to describe fully. The plan of having university surgical interns serve for a time in the hospital has proved very satisfactory to both parties. Owing to limitations of space in the hospital, the university has provided rooms for two members of the hospital's research staff. The university generously has paid part of

the cost of publication of volume III of the hospital's collected researches in dermatology. Special research equipment belonging to the hospital is used by university workers and vice versa. Forty-three staff members of the hospital are also on the faculty of Washington University. There is much coming and going between the two institutions and it is wished that they were situated closer together.

In a wider sphere integration already established has advanced in 1941. Unusually well qualified physicians continue to be assigned by the United States Public Health Service to the Barnard Hospital for special training in cancer. Though the work of these trainees is primarily clinical, Drs. M. V. Laing and D. J. Verda completed very creditable papers on melanomata and mixed tumors of the parotid respectively. Data collected by two public health nurses, for a long time on duty in the hospital, are at present being worked up in the National Cancer Institute at Washington with a view to publication. The main cancer research project of the hospital, on methylcholanthrene epidermal carcinogenesis, is approaching the point where it can be integrated with studies maturing in the National Cancer Institute on ultraviolet epidermal carcinogenesis, since it is desirable to bring together the results of cancer production in the same tissue by chemical and physical agents, namely, methylcholanthrene and ultraviolet light.

Cooperation with the Kettering Institute for Medical Research has increased greatly in 1941. There have been numerous helpful conferences between the Director of the Institute, Dr. Walter M. Simpson, and the staff of the Barnard Hospital. Several members of the staff of the hospital have visited the Institute. This valuable association has spread to include the C. F. Kettering Foundation for the Study of Chlorophyll and Photosynthesis at Antioch College. The Director of this foundation, Dr. O. L. Inman, has visited the hospital and given an instructive lecture. Numerous members of the staff have benefited by his advice. The crux of the problem at the hospital is the utilization of physical and chemical technics. Suggestions received by members of the staff, when they visited the Kettering Foundation, regarding spectrographic analysis, have been of the utmost service. At present, stains, unstained and stained tissues are being sent to the foundation where absorption spectra are made with gratifying promptness. Such spectra from three batches of materials have already been made available for studies.

In addition, two new and helpful contacts have been established. That of Dr. Morris Moore, with the National Tuberculosis Association, has been mentioned. In this connection, Dr. Moore attended a meeting of the Research Committee of the Association in Washington on December 12. Last spring the Director of Research of Barnard Hospital visited the Jane Coffin Childs Cancer Research Fund at Yale and its Director, Dr. S. Bayne-Jones, later came to St. Louis and inspected the hospital with the result that the fund made a grant toward the expenses of the studies and a profitable exchange of ideas was initiated.

An important factor in the prosecution of research in the Barnard Hospital is the presence on its staff or two former research directors, Dr. M. G. Seelig and Dr. Louis Jorstad. They give valuable advice based on mature experience. Moreover, another former Director of Research, Dr. George M. Smith, of Yale University, has spent considerable time going over plans at the hospital. As a result, continuity of effort is assured.

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The Barnard Hospital does not regularly send out reprints to a large circle of investigators. However, copies of any of these papers will be forwarded free on request as long as the supply permits.

THE OPPORTUNITY PRESENTED TO THE BARNARD FREE SKIN AND CANCER HOSPITAL TODAY

M. G. SEELIG, M.D.
ST. LOUIS

Including the organization meeting of 1905, this afternoon marks the 38th annual gathering of the distinguished group known as The Barnard Hospital Association. Each year has witnessed the laying on of a new layer of incrustation until it is truly becoming thick and heavy with tradition of the best sort. On the roster of those who have served this institution in both lay and professional capacities, and who have gone to their last reward, there are names that grace the past and lend it luster. And by those who are now active, the torch of service both to humanity and to science is held high. These are results that more than justify any type of altruistic endeavor.

I know I will be forgiven if the main current of my thoughts flows in the channel of the professional accomplishments of this institution. After all, it is my good fortune to be a physician and I, therefore, have the vision of the physician, even though it may be short-sighted to the degree of actual myopia. But reviewing the past, I do know that Dr. Norman Bruce Carson was a colossus among surgeons and a pioneer in hacking out new paths in the fierce jungle of cancer; that Dr. Harvey Mudd was a finished surgeon who translated his best technical capacities into terms of salvaging the cancer sufferer; that Dr. Washington Fischel gave a large part of both his remarkable organizing ability and his brilliant clinical talent to this hospital; that his son, Ellis Fischel's restless spirit of conquest flowed over the borders of this institution, taking the whole State of Missouri as the bailiwick of his effort to conquer cancer; that the much lamented George Gellhorn, the happiest of happy warriors in the fight against the plague of malignant growth, laid the plans and practiced the execution of many noteworthy attacks right in the Barnard Hospital; that, among the present day workers, Martin Engman, Sr., has made the dermatologic section of this institution a byword in American medicine; that Dr. Taussig, by establishing his own fame securely throughout the scientific world as a cancer worker in the gynecologic field, has lighted this institution with the glory reflected from his efforts; just as Dr. Leighton, in surgery, by plodding, careful, dogged endeavor, has established procedures in the treatment of cancer that have won him the broadest possible recognition and, in so doing, also has brought to this hospital the priceless badge of preeminence as an institution; that the creative work that Dr. Ernst has done in the field of radio-activity also has brought credit and national recognition to him, and through

Delivered at the Annual Meeting of the Barnard Hospital Association, January 26, 1942.

him, to us. Finally, and with this I bring to a close this condensation of the history of this hospital, I may tell you that now, in this institution, under the present Director of Research, Dr. E. V. Cowdry, is a planned program of cancer investigation that, for breadth of scope, fertility of thought, brilliance of workers, enthusiasm in exccution and prospect of results, is unexcelled anywhere else in the world. This is high praise, but it is no higher than is the aim of the present department of research; and if you are inclined to discount the possibly prejudiced enthusiasm of myself, let me remind you that the United States Public Health Service, the Jane Coffin Childs Memorial Fund for Medical Research, the Montgomery Corporation, the American Medical Association, the Chemical Foundation, the Anna Fuller Fund, the National Tuberculosis Association and an anomymous eastern foundation have certified to their faith and their hope in the research program of the Barnard Hospital, and certified to it in the way that counts most tangibly; namely, by underwriting the program with funds. All of these beneficent agencies are located outside of Missouri. Only one incorporated group at home has lent consistent support; namely, that set of big-hearted women, the Gertrude Society.

You must not gather from what I have said that the workers in this institution live in a peaceful atmosphere of unqualified and undisturbed sweetness and light. I have always, whenever the opportunity presented itself, stressed the fact that, due largely to the superintendent, the Barnard Hospital group manifests an almost incredibly fine morale; but you may be assured that there is not wanting that element of critique and even disputation that is so necessary in safeguarding a solid basis for all intellectual work. In fact, I sometimes feel that we men and women might fit in with that old reprobate Adam McAdam's description of the people of the North of Scotland, whose inveterate skepticism he characterized in the terse sentence: "One half o'what ye say they doot, and they let ye see it; and t'ither half they disbelieve, and they tell ye so."

Holding in mind this picture of Barnard Hospital from earliest times down to today, what shall one think and say about the prospect? What lies in the lap of the future? In what terms shall one reckon its destiny? It goes without saying that any detailed program for the future would, of necessity, involve countless adjustments of various ideas and ideals, plans and specifications, hopes and dreams. Indeed, without a most careful and studious nurturing of hopes and dreams, all is lost. I pray that we who are interested in this hospital's future may dream, at will, using our imagination as the great Claude Barnard advised that it be used; namely, as a cloak to wrap around us closely during all our planning moments.

Only a minimum of imagination is needed as a goad, in parlous times such as the present. We have it on reliable authority* that our country has, during its history, engaged in six major wars, lasting, all told, fifteen years. During those fifteen years of warfare, 244,357 of our soldiers were killed. In contrast with this loss of a little less than a quarter of a million persons, there occurred 1,647,952 deaths from cancer during a similar fifteen year period from 1921 to 1935. At present there are in this country 150,000 deaths a year from cancer, so although during fifteen years of warfare a quarter of a million people died on battlefields, today, in a fifteen year period, two and a quarter million die of cancer. By the simplest logic, even the most casual type of mind cannot fail to realize that where war stalks, there the Angel of Death is always so near that, in the immortal phrase of John Bright, one may "almost hear the flapping of his wings"; and when death claims his toll on the battlefield of war, then there falls to our lot the burden of lessening his toll on the battlefield of cancer. As I see it then, the present time clothes us with the holy duty and the glorious opportunity of struggling against this disease with an increased measure of zeal. This we are doing, and this we shall continue to do by a direct frontal attack. Our clinicians alleviate and cure cancer and give to the world ever and ever more certain methods for the accomplishment of these ends. Our research workers lay bare new facts underlying the cause and the cure of the disease, and these they give to the world at large. It is a matter of fact that many may not know, that the basis for all modern cancer research was laid by our first Director of Research, Dr. Leo Loeb, later Professor of Pathology in the Washington University School of Medicine, who showed in 1901, before he was associated with this institution, that cancer could be transplanted from one animal to another one of the same species with almost the same ease with which the farmer seeds his fields. That this institution has served as the workshop of such a distinguished pathfinder, leads me to say again, as I have often said before, that if, when and as the specific cause or cure of cancer is discovered, there is no reason in the very nature of things, why that discovery should not spring from this our own beloved institution.

But it will not spring out of thin air. To the medical and research staffs fall the tasks of unriddling the mystery; to the lay board and to this association falls the obligation of implementing the workers in their labors. And that is only an euphemistic fashion of saying that your job is to furnish the cash. We cannot go on much longer, with heads high, drawing the larger share of our research funds from foreign sources. It is writ large in the annals of history that donors, away from home, are acutely sensitive and critical; and concerning nothing are they more sensitive and critical than whether or not an institution commands a full measure of financial support from its local citizenry. Your job, you of this Association and of the Board of Directors, is to see to it that what is done for us away from home is more than

*Donald W. Trueblood: Bull. Am. Soc. Control of Cancer 23:4, 1941.

matched by our own home folk, who, after all, are the direct beneficiaries of our efforts.

A wise and good old preacher saw the need of a chapel in the poorer quarter of town. He called his parishioners together, stepped into the pulpit and, after explaining his purpose, opened his Bible to Proverbs 19:17 and read: "He that is gracious unto the poor, lendeth unto the Lord, and that which he hath given, will he repay him." Solemnly he closed the Book, penetrated his hearers with a steely stare, saying, "The Lord says he will repay. Now, brethren, you have heard the terms of the loan; if you like the collateral, come across with the dust."

4954 Lindell Boulevard.

REPORT OF EXECUTIVE COMMITTEE OF THE BARNARD FREE SKIN AND CANCER HOSPITAL

FRED J. TAUSSIG, M.D.

ST. LOUIS

Nineteen forty-one was the first year that the people of Missouri had in full operation two institutions devoted exclusively to the treatment of cancer and allied diseases. One was the Ellis Fischel State Cancer Hospital and the other, the Barnard Free Skin and Cancer Hospital. Both institutions were built exclusively for the care of indigent patients, without any charges for services. It may be surprising to know that in spite of the increased facilities provided for the treatment of cancer patients, both institutions have been filled almost continuously to the last bed with a long list of persons awaiting their turn for admission. It had been anticipated that there would be a slight drop in admissions to the Barnard Hospital after the state institution had been in operation for a full year, but this did not occur. Apparently there were, and perhaps still are, hundreds of cancer cases in this state eager for an opportunity to get the best, most efficient, treatment for their condition. Missouri can be proud of the fact that it stands among the half dozen states that are leading the way in the control of this disease, and Barnard Hospital has been the torchbearer in bringing this to accomplishment.

In attempting a digest of the statistical report, a copy of which is herewith attached, it is noteworthy that the number of new admissions to the hospital and the number of hospital days has not varied greatly over the previous year. In both years, more than 1,100 new patients were given treatment, approximately 50 per cent greater than in the year 1937. The number of hospital days is approximately 14,000, and the number of operations in the clinic and in the hospital ranges a little over 2,000 a year. In other words, the hospital has been working at maximum capacity throughout the twelve months.

In both the clinical departments and in the research laboratories, cooperation with the National Cancer Institute has continued. In the last year the hospital has had two trainees, men appointed by the Council in Washington, as persons specially qualified to become experts in the clinical treatment of cancer. One of these, Dr. Verda, has been with the hospital for more than a year, and the other, Dr. Lundmark, was selected, after his appointment as trainee, to become the resident in surgery. It is hoped that unless war conditions interfere, appointments may continue to be made by

Chairman Executive Committee of the Medical Staff, Barnard Free Skin and Cancer Hospital, St. Louis.

General Statistics

	1941	1940	1939	1938	1937
HOSPITAL					
Total number of patients in Hospital	1,117	1,174	985	953	787
Total number of patients admitted to					
Department of Cancer	1,061	1,109	928	894	732
General Surgical	786	798	668	610	500
Gynecological	275	311	260	284	232
Department of Skin	55	65	54	53	45
Department of Internal Medicine	1	0	3	6	10
Total number of hospital days	13,918	13,858	14,201	14,413	14,002
Total number of operations performed	1,095	1,136	987	979	802
General surgical	816	815	695	599	555
Gynecological	279	321	292	380	247
CLINIC					
Total number of new patients treated in Clinic	3,603	3,730	4,092	4,217	3,732
Department of Cancer	1,574	1,594	1,888	1,797	1,479
General Surgical	1,157	1,118	1,373	1,281	1,039
Gynecological	417	476	515	516	440
Department of Skin	2,023	2,131	2,198	2,408	2,237
Department of Internal Medicine	6	5	6	12	15
Total number of clinical consultations	37,094	38,769	35,429	31,975	28,600
Department of Cancer	10,441	10,451	10,088	8,968	8,204
General Surgical	7,917	7,935	7,840	6,803	6,288
Gynecological	2,524	2,516	2,248	2,165	1,916
Department of Skin	12,938	11,957	11,380	10,837	10,745
Department of Internal Medicine	842	806	1,251	2,240	2,186
X-ray Department	2,362	2,436	2,698	2,610	2,385
X-ray Department—Treatments	10,511	13,119	10,012	7,320	5,080
Superficial	999	907	807	1,237	751
Deep therapy	9,512	12,212	9,205	6,083	4,329
Radium Department—Treatments	319	420	423	449	363
Department of Radiography					
Patients	898	952	1,020	711	549
Films	2,475	2,300	2,700	1,397	850
Fluoroscopic examinations	250	151	181	84	124
Department of Pathology					
Sections	1,834	1,878	1,923	1,797	1,553
Kahns	1,125	1,283	1,243	611	515
Blood sugar and N.P.N.	135	80	55	61	64
Photo Department					
Cases	426	669	662	570	202
Pictures	1,278	2,676	2,648	2,280	808
Operations in clinic	967	916	875	786	665

the National Cancer Institute to serve in this institution.

One of the members of the National Cancer Institute, Dr. James B. Murphy, head of the cancer research program of the Rockefeller Institute, was a guest speaker in St. Louis, on November 18, to give the third Barnard lecture. This lecture is given before the St. Louis Medical Society and published in the *Journal of the American Medical Association*. The persons thus far selected to give these Barnard lectures are nationally known leaders in cancer work. There is no question that these annual Barnard lectures, financed through the research department, are important contributions to this work and serve to bring to the attention of the public and the medical profession the position of this hospital in this field.

There have been numerous distinguished guests at the hospital this year besides Dr. Murphy. There was Dr. Bayne-Jones, head of the cancer program at Yale University and director of Childs Foundation for cancer research. From the Washington office of the National Cancer Institute, have been several representatives, Dr. Schiele, Dr. Andervont and Dr. Anderson. Dr. Inman of the Kettering Foundation was in St. Louis for a visit last month. In addition, there were numerous others who came to see our work at the time of the meetings of medical conventions in St. Louis.

The Department of Dermatology, under the editorship of Dr. M. F. Engman, Sr., has published this year "Collective Studies in Dermatology," springing from the work of his department at Washington University and at the Barnard Free Skin and Cancer Hospital. This marks the third volume of this kind to be published by his department and is evidence of the activity of the work he and his associates have been doing.

The hospital was indeed fortunate that the outbreak of the war did so little to disrupt its medical services. All the attending surgeons and most of the associate surgeons and physicians have been exempted for one reason or another. Those who have left are Drs. Leo Gottlieb, Bruce Martin, Paul Max and A. H. Conrad, Jr. The Medical Board has retained these men on the staff, but granted them leave of absence for the duration of the war.

3720 Washington Boulevard.

A 2 YEAR OLD CHILD SWALLOWS A MILL

JOHN S. KNIGHT, M.D.

KANSAS CITY, MO.

In the last two years it has been necessary for me to remove sixteen mills from the throats of small children. It is time that something should be done from a prophylactic standpoint to prevent the repetition of this happening. The Missouri state tax mill is practically the same size as a quarter, and an object of this size frequently will impact

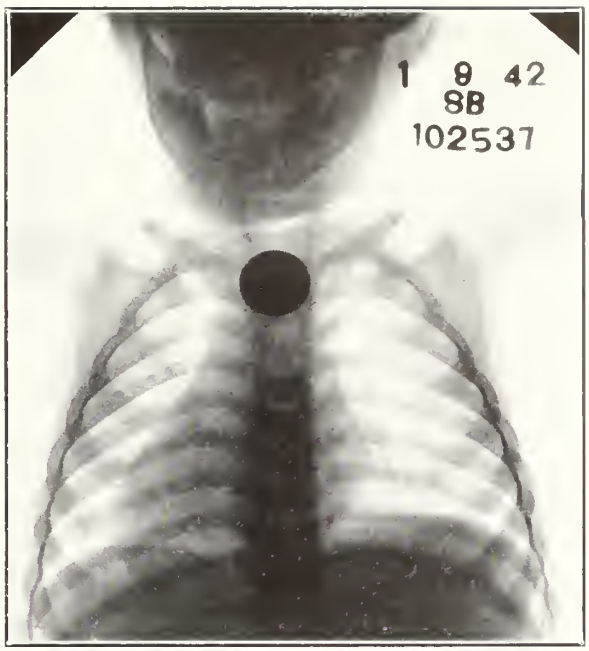


Fig. 1. Missouri tax mill impacted in the upper esophagus of a 2 year old child. This is a typical picture of this type of foreign body in the esophagus. With proper equipment and training, the removal is not difficult, but the condition can prove fatal if not corrected. However, it would be best to remove the source of the evil by the elimination of the mill.

itself in the esophagus of a young child. The oldest of the patients was 2½ years and the youngest 1½ years of age. The last patient carried a mill in the upper esophagus for one week during which time the child was unable to swallow any nourishment. Three mills were impacted in another case. To date, there have been no complications but, undoubtedly, there will be some tragedies in the future because ulceration of the esophagus is merely a stage beyond impaction. The removal is comparatively simple once the diagnosis is established. However, many cases may be overlooked; many physicians think that a mill will pass down the esophagus and on through the intestinal tract because they frequently have observed the passage of a nickel. In my experience this is not the case since I have had only one case of an impacted nickel in twelve years. The fact that the mill has little actual value has resulted in much carelessness in allowing small children to play with them.

Two suggestions to remedy this condition are made: the elimination of the mill or the reduction of its size so that it might easily pass through the intestinal tract. Legislation should be instituted to accomplish this result.

1622 Professional Building.

First aid students should be taught that "in case a tourniquet is applied for the control of arterial hemorrhage, it is wise to release the tourniquet for a few minutes at thirty minute intervals," *The Journal of the American Medical Association* for February 7 advises. "If the extremity is packed in ice, this time interval can be safely extended to one hour," it adds.

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MARCH, 1942

EDITORIALS

THE KANSAS CITY SESSION

The Eighty-fifth Annual Session of the Missouri State Medical Association will be held in Kansas City, April 27, 28 and 29. All sessions except luncheon and dinner meetings will be held in the Municipal Auditorium.

The Committee on Scientific Work has an excellent program near completion. Out of state speakers who will present addresses at the general meetings are Dr. Cobb Pilcher, Nashville, Tennessee, Associate Professor of Surgery, Vanderbilt University School of Medicine; Dr. George R. Herrmann, Galveston, Texas, Professor of Clinical Medicine, University of Texas Faculty of Medicine; Dr. Hobart A. Reimann, Philadelphia, Magee Professor of Practice of Medicine and Clinical Medicine, Jefferson Medical College; Dr. Russell L. Haden, Cleveland, Ohio; Dr. Arthur Purdy Stout, New York, Associate Professor of Surgery, Columbia University College of Physicians and Surgeons; Dr. Waltman Walters, Rochester, Minnesota, Professor of Surgery, University of Minnesota Graduate School; Dr. Joe Vincent Meigs, Boston; Dr. Oliver Cope, Boston, Assistant Professor of Surgery, Harvard Medical School; Dr. Harris B. Schumacker, Jr., Baltimore; Dr. Irvine H. Page, Indianapolis; Dr. Willard R. Cooke, Galveston, Professor of Obstetrics and Gynecology, University of Texas Faculty of Medicine; Dr. K. W. Brimmer, Food and Drug Administration, Washington, D. C.

Col. George F. Lull, Chief, Personnel Division, United States Army Medical Corps, Washington, D. C., will be the principal speaker at the annual banquet to be held on Monday evening at the President Hotel. Past Presidents of the Association will be the guests of honor. The President's Reception will follow the banquet.

Several valuable scientific exhibits have been arranged for the Session. Because more space than usual is available for a session, there is room for more scientific exhibits than have been arranged and members, organizations and schools are invited to have exhibits. Barnard C. Trowbridge, 608 Commerce Building, Kansas City, is in charge of scientific exhibits.

Round table discussions will be held at luncheon meetings at the President Hotel on Tuesday and Wednesday of the session at which guest speakers will answer questions presented by members.

The Committee on Maternal Welfare and Infant Care will hold its annual meeting Monday noon at a luncheon meeting. Physicians will report problems that have arisen in their practices during the last year and Dr. Willard R. Cooke, Galveston, will discuss the cases reported. Dr. Cooke will address the general meeting in the afternoon on Monday.

The House of Delegates will convene in the Auditorium on Monday morning at 9:30 a. m. and at 4:30 p. m. and again on Wednesday at 4:00 p. m. The Council will meet at the President Hotel on Monday noon and again following adjournment of the House of Delegates on Wednesday.

The General Committee on Arrangements for the Annual Session is composed of Drs. F. I. Wilson, Kansas City; A. S. Bristow, Princeton, and W. A. Bloom, Fayette. The local committees follow:

Executive: Drs. Rex. L. Diveley, Chairman; F. I. Wilson and A. E. Eubank.

Exhibits: Drs. Ralph R. Coffey, Chairman; R. W. Kerr, A. G. Asher, H. L. Mantz, J. A. Growdon and H. M. Parker.

Registration: Drs. Max Goldman, Chairman; O. S. Gilliland and F. B. Leitz.

Publicity: Drs. Ira H. Lockwood, Chairman; Carl R. Ferris, J. V. Bell and W. F. Kuhn.

Entertainment: Drs. C. K. Shofstall, Chairman; Rex. L. Diveley, and H. V. Zuber.

Finance: Drs. F. I. Wilson, Chairman; F. B. Kyger, E. Kip Robinson and John McLeod.

Hotels: Drs. F. H. Wakefield, Chairman; G. A. Roy and V. T. Williams.

President's Reception: Drs. J. R. McVay, Chairman; F. D. Dickson, F. R. Teachenor, and Morris B. Simpson.

AMERICAN COLLEGE OF SURGEONS ANNOUNCES WAR SESSIONS

The United States Army, the United States Navy and the United States Office of Civilian Defense will cooperate with the American College of Surgeons in a series of meetings during the coming months which will bring within convenient access of physicians, surgeons and hospital personnel in general throughout the United States, first hand opportunities for information and consultation with respect to their war duties. Surgeon General James C. Magee of the Army, Surgeon General Ross T. McIntire of the Navy, and Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, will appoint, and in some instances they have already designated, officers to take active part on behalf of their organizations in one day meetings, probably thirty in all, which the College will spon-

sor in places selected so as to permit participation of the medical and hospital professions in every state and the District of Columbia. A similar plan is contemplated to be carried out in Canada. The program for each meeting will be concentrated on medicine and surgery in military service and in civilian defense. The meetings will be open to the entire medical and hospital profession in the participating states.

In the United States, meetings are contemplated in five areas. The meetings in the first area are scheduled at: Louisville, Nashville, St. Louis, Chicago, Detroit and Columbus. The St. Louis meeting will be held on March 6 with headquarters at the Jefferson Hotel.

The Army will be represented at the meetings in Louisville, Nashville and St. Louis by Brigadier General Charles C. Hillman, Chief of Professional Service Division, Office of the Surgeon General, and in Chicago, Detroit and Columbus by Major Roger G. Prentiss, Jr., of the Medical Corps. The Navy will be represented by Captain Frederick R. Hook, Chief of the Surgical Service of the United States Naval Hospital in Washington. The United States Office of Civilian Defense will be represented by Dr. William S. Keller at the Louisville and Columbus meetings; by Dr. Judson D. Dowling in Nashville; and by Dr. John S. Coulter in St. Louis, Chicago and Detroit. The Procurement and Assignment Service will be represented by Major Sam F. Seeley, Executive Officer or by a specially appointed delegate.

Among the speakers not in the federal services who will take part in the program in the first area are the following: Dr. Irvin Abell, Dr. R. Griswold and Dr. Joseph E. Hamilton, Louisville; Dr. George Crile, Cleveland; Dr. George M. Curtis, Columbus; Dr. Evarts A. Graham, Dr. Vilray P. Blair and Dr. James B. Brown, St. Louis; Dr. Carl E. Badgley, Dr. Frederick A. Coller and Dr. Max M. Peet, Ann Arbor; Dr. Grover C. Penberthy, Detroit; Dr. Willis D. Gatch, Indianapolis; Dr. Alton Ochsner, Dr. Ambrose L. Storck and Dr. Michael L. DeBakey, New Orleans; Dr. Frederic A. Besley, Waukegan; Dr. Warren H. Cole, Dr. William R. Cubbins, Dr. Loyal Davis, Dr. Sumner L. Koch and Dr. Dallas B. Phemister, Chicago.

The outline of the one day program for members of the medical profession follows:

9:00 a. m. Panel discussion: Treatment of War Injuries to the Skull and Face.

9:45 a. m. Panel discussion: Treatment of War Injuries to the Chest.

10:45 a. m. The Organization and Functions of the Medical Department of the U. S. Army.

11:15 a. m. The Organization and Functions of the Medical Department of the U. S. Navy.

11:45 a. m. The Doctor and the Hospital in Civilian Defense.

12:30 noon. Luncheon. Address and round table discussion of Procurement and Assignment Service.

2:15 p. m. Panel discussion: Treatment of Wounds of Soft Parts.

2:50 p. m. Panel discussion: Prevention and Treatment of Hemorrhage.

3:45 p. m. Panel discussion: Fractures.

6:00 p. m. Dinner.

7:30 p. m. Activities of the American College of Surgeons and Their Relation to the Defense Program.

8:00 p. m. Panel discussion: Treatment of Burns.

9:00 p. m. Panel discussion: Prevention and Treatment of Shock.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

The second American Congress on Obstetrics and Gynecology will be held in St. Louis, April 6 to 10, in the St. Louis Auditorium. The morning sessions will be divided into two periods, one beginning at 9:30 a. m. and one at 11:00 a. m. with formal presentations in the first period. At 11:00 o'clock there will be a general "Obstetric Information Please" presided over by a moderator and four experts. This will be repeated on Wednesday morning with "Shock and Hemorrhage" the subject and on Friday with "Economics" the subject. Clinical conferences on genital infections and "How Not to Treat Carcinoma" will be held Tuesday morning and Thursday morning at 11:00 o'clock. During the afternoons various groups will present formal programs devoted to nursing, public health and hospital administration, among which will be certain combined programs.

A special feature of the Congress will be a daily consultation service at 3:30 p. m. Approximately fifty nationally known physicians will be available for fifteen minute consultations through a registration system. Practical demonstrations are scheduled in the scientific exhibit area on manikin deliveries, home care technic and blood transfusions.

Topics to be discussed at round tables include roentgen ray pelvimetry, treatment of prolonged labor, pyelitis of pregnancy, retrodisplacements of the uterus, erythroblastosis, obstetric analgesia, total versus subtotal hysterectomy, treatment of fibroids, cesarean section, infiltration and block anesthesia, problems of adolescence, asphyxia and anoxia, problems of menopause, prevention of obstetric infection, treatment of abortion, treatment of genital prolapse.

The first Congress was held in 1939 in Cleveland for the purpose of "studying the present day problems in obstetrics and gynecology and working toward a solution of these problems." The programs are planned to present the "medical, nursing and health aspects of human reproduction, maternal and neonatal care from scientific, practical, educational and economic viewpoints."

Membership in the Congress which is $5.00 includes a year's membership in the American Committee on Maternal Welfare. Membership appli-

cation should be directed to The Second American Congress on Obstetrics and Gynecology, 650 Rush Street, Chicago.

COMMITTEE ON AMERICAN HEALTH RESORTS

With the possibility that health resorts may be called upon for the treatment of war casualties and diseases arising out of military service and the unavailability of foreign resorts, the Committee on American Health Resorts created by the House of Delegates of the American Medical Association in 1938 and subsequently appointed by the Board of Trustees, has become more important.

The committee has worked along two principal lines, the development of simple yet comprehensive rules which will tend to identify health resorts with adequate facilities and appropriate medical supervision to insure the safety of patients and the development of a series of scientific papers on various phases of health resort therapy.

The committee has defined a health resort as "an institution which gives major attention to the use of special climatic and other natural therapeutic resources including mineral waters, peloids, etc., with which it is endowed by reason of its location." While the use of the natural resources is the prime object or purpose of the institution, other remedies may be applied as an adjunct.

Claims made by the resort must be acceptable to the committee and all advertising material must be presented with the application for approval. The committee proposes to compile a listing of resorts which comply with the rules established by the committee.

NEWS NOTES

The Trudeau Club of St. Louis met February 5. The following program was presented: "Unusual Cases of Mediastinal Tumor," Dr. Evarts A. Graham; "Surgical Treatment of Bilateral Bronchiectasis," Dr. Brian Blades; "Spontaneous Pneumothorax Treatment by Poudrage," Dr. Dan W. Myers.

The Fifth Institute on Postgraduate Psychiatric Education for State Hospitals under the auspices of the American Psychiatric Association Committee on Psychiatry in Medical Education will be held at State Hospital No. 2, St. Joseph, from March 23 to April 4. Sessions will begin at 9:00 a. m. and continue to 5:00 p. m. each day. Lectures will be presented on neuro-anatomy, neuropathology, psychobiology, psychotherapy, neuroroentgenology, neurosurgery and electroencephalography as well as presentations of clinical psychiatric and neurologic problems and related subjects.

The annual Russell D. Carman Lecture, sponsored by the St. Louis Society of Radiologists, was presented by Dr. Leo Rigler, Professor of Roentgenology, University of Minnesota, on February 2. Dr. Rigler's subject was "Roentgenological Diagnosis of Acute Abdominal States."

Scientific exhibits will be stressed at the 1942 Annual Session of the Missouri State Medical Association to be held in Kansas City, April 27, 28 and 29. Members wishing to present exhibits should contact Barnard C. Trowbridge, 608 Commerce Building, Kansas City, member of the Committee on Scientific Work in charge of scientific exhibits.

The Jasper County Medical Society honored its recently elected honor members at a dinner meeting on December 23. Dr. H. L. Kerr, Crane, President-Elect of the Association, was the principal speaker. The members honored were Drs. R. L. Neff, R. M. James and W. S. Loveland, Joplin; W. R. Gaddie, Duenweg (who died on January 11); Everett Powers, Carthage.

During the period August 15 to December 15, 1941, the National Youth Administration for Missouri conducted 2,489 health examinations. Of this number 2,287 were recommended for dental care; 661 for refraction; 654 for tonsillectomy; 251 for other minor surgery; 83 for venereal disease treatment; 665 for special diets; 32 for study of chest; 47 were referred for study of heart; 70 for eye, 73 for ear, nose and throat; 62 for study by internists; second urinalysis was recommended for 160 because findings indicated either sugar or albumin present in the urine at the time of their initial examination. Roentgenogram of chest was recommended for 72; study of blood in 45 and many other recommendations of lesser number were made including study by gynecologist, endocrinologist, orthopedic surgeon, neurologist and psychiatrist.

DEATHS

Tout, Benjamin B., M.D., Archie, graduate of the Kansas City Medical College, 1901; honor member and former president of the Cass County Medical Society; aged 75; died October 29, 1941.

Duncan, George W., M.D., graduate of Washington University School of Medicine, 1908; member and former president of the Miller County Medical Society; aged 62; died November 3, 1941.

Nally, Harvy, M.D., Cainsville, graduate of the University of Missouri School of Medicine, 1876; honor member of the Mercer County Medical Society; aged 87; died November 3, 1941.

Lewis, Leon Charles, M.D., Kansas City, graduate of the University Medical College of Kansas City, 1925; member of the Jackson County Medical Society; aged 65; died November 10, 1941.

Yancey, Edwin F., M.D., Sedalia, graduate of the Mis-

souri Medical College, St. Louis, 1882; member of the Pettis County Medical Society; aged 83; died November 21, 1941.

Post, Winfred B., M.D., Carthage, graduate of the Missouri Medical College, 1897; member of the Jasper County Medical Society; aged 70; died December 22, 1941.

Gaddie, William R., M.D., Duenweg, graduate of the Hospital College of Medicine, Louisville, 1898; member of the Jasper County Medical Society; aged 71; died January 11, 1942.

Niebruegge, Henry John, M.D., St. Louis, graduate of the St. Louis College of Physicians and Surgeons, 1900; member of the St. Louis Medical Society; aged 68; died January 13, 1942.

Starkloff, Max C., M.D., St. Louis, graduate of Washington University School of Medicine, 1881; honor member of the St. Louis Medical Society; former Health Commissioner of St. Louis; aged 84; died January 14, 1942.

MISCELLANY

THE PHYSICIAN'S FEDERAL INCOME TAX—1942

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION

In view of the fact that March 15 falls on a Sunday this year, income tax returns must be filed on or before March 16, unless an extension of time for filing has been granted.

While the Revenue Act of 1941 did not basically change the structure of the existing income tax act, it did lower exemptions, increase surtax rates and in many other ways effect changes the overall result of which will be a sharp increase in the total tax that physicians and other taxpayers will be required to pay. The basic rate remains the same, 4 per cent on net income in excess of allowable exemptions and credits. The surtax this year is imposed on the first dollar of net income above the personal exemption and credit for dependents. The surtax rate is 6 per cent on the first $2,000 and 9 per cent on the second $2,000, with a constant increase in the rate for incomes in the higher brackets.

The earned income credit remains in the law and as heretofore may be claimed in connection with the normal tax but not in connection with the surtax. The special 10 per cent defense tax that was applicable last year has been eliminated as such.

A departure from previous practice is to be found in the provision for a simplified tax schedule for use by taxpayers having gross incomes of $3,000 or less derived wholly from salaries, wages, other forms of compensation for personal services, dividends, interest, rents, annuities or royalties. The use of the simplified form is optional. If the taxpayer has no deductions it will be to his advantage to use this form. If he has deductions he should tentatively figure the tax under both the regular method and the optional method and use whichever method results in the smaller tax.

WHO MUST FILE RETURNS

In General.—1. Returns must be filed by every unmarried person and by every married person not living with spouse, if gross income during 1941 was $750 or more.

2. Returns must be filed by every married person who lived with spouse, if gross income during 1941 was $1,500 or over. If both husband and wife had income and their combined gross income was $1,500 or over, they must either file separate returns or, if both are citizens or residents of the United States and if they were living together at the end of the taxable year, they may file a joint return. If a person was married and lived with spouse for only part of 1941, special rules apply with respect to the filing of returns, and physicians who come within this classification should read carefully the instructions given on the tax return blanks.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changed during the year, the personal exemption and credit must be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is to be considered as a month.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse anyone from making a return; the taxpayer should obtain the necessary blank from the local collector of internal revenue.

Physicians in Military or Naval Service.—The fact that a physician may be in service does not of itself excuse a failure to file a return, for the income tax act applies to persons in service as well as to persons engaged in civilian activities. Physicians who have been inducted into service, therefore, should if at all possible file complete returns before the deadline. While, unfortunately, definite regulations have not been issued to cover the situation, it is understood that, if because of the inaccessibility of necessary records a physician in service is unable to file a complete return, he may file a tentative return on which he must estimate his income, deductions and tax as best he can and indicate on the return his reasons for following this procedure. He will be required at a later date to file a complete return, and necessary adjustments in the tax will be made.

If a physician in service is on duty outside the United States, the general regulations promulgated by the Bureau of Internal Revenue provide for an extension of time for filing a return up to and including the fifteenth day of the sixth month following the close of the tax year. In all such cases an affidavit must be attached to the return, stating the cause of the delay in filing.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, assuming that the return is made on a cash receipts and disbursements basis, plus such money as he has received as profits from investments and speculation and as compensation and profits from other sources.

If a physician receives a salary as compensation for services rendred and in addition thereto living quarters or meals, the value to the physician of the quarters and meals so furnished ordinarily constitutes income subject to tax. If, however, living quarters or meals are furnished for the convenience of the employer, the value thereof need not be computed and added to the compensation otherwise received by the physician. As a general rule, the test of "convenience of the employer" is satisfied if living quarters or meals are furnished to a physician who is required to accept such quarters and meals in order to perform properly his duties. For example, if a physician employed by a hospital is subject to immediate service at any time during the twenty-four hours of the day and therefore cannot obtain quarters or meals elsewhere without material interference with his duties and on that account is required by the hospital to accept the quarters or meals

furnished by it, the value thereof need not be included in the gross income of the physician.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In computing the normal tax, but not the surtax, there may be subtracted from net income from all sources an amount equal to 10 per cent of the earned net income, except that the amount so subtracted shall in no case exceed 10 per cent of the net income from all sources. Earned income means professional fees, salaries and wages received as compensation for personal services, as distinguished from receipts from other sources.

The first $3,000 of a physician's net income from all sources may be regarded under the law as earned net income, whether it was or was not in fact earned within the meaning set forth in the preceding paragraph. Net income in excess of $3,000 may not be claimed as earned unless it in fact comes within that category. No physician may claim as earned net income any income in excess of $14,000.

PHYSICIANS IN MILITARY OR NAVAL SERVICE

As previously pointed out, physicians in service are as much subject to the income tax law as are physicians engaged in civilian practice. The service pay of such physicians must be reported as income. Commutation of quarters and rental value of quarters occupied by medical officers, however, are not taxable income.

If the ability of physicians in service to pay income taxes is materially affected by such service, payment of the tax falling due before or during the service may be deferred for a period extending not more than six months after termination of service. This deferment is authorized by section 513 of the Soldiers' and Sailors' Civil Relief Act of 1940 and applies to all members of the Army, Navy, Marine Corps and Coast Guard, and to all officers of the United States Public Health Service detailed by proper authority for duty either with the Army or Navy, on active duty or undergoing training or education under the supervision of the United States preliminary to induction into service. This does not apply to the tax imposed on employers by section 1400 of the Federal Insurance Contributions Act.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. So far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rent fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in such dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment, such as has been described, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation reductions taken year by year over its useful life, as described later.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price or, if purchased before March 1913, either its fair market value as of that date or its original cost, whichever may be greater. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in his individual case.

In a Treasury Decision, approved February 28, 1934, No. 4422, it was held, among other things, that:

1. The cost to be recovered shall be charged off over the useful life of the property.
2. The reasonableness of any claim for depreciation shall be determined on the conditions known to exist at the end of the period for which the return was made.
3. Where the cost or other basis of the property has been recovered through depreciation or other allowances, no further deduction for depreciation shall be allowed.
4. The burden of proof will rest on the taxpayer to sustain the deduction claimed.
5. The deduction for depreciation in respect to any depreciable property for any taxable year shall be

limited to such ratable amount as may reasonably be considered necessary to recover during the remaining life of the property the unrecovered cost or other basis.

Particular attention is called to the last of the foregoing provisions. If, in prior years, rates have been claimed which, if continued, will fully depreciate the cost, less salvage, before the end of its useful life, based on conditions now known, a reestimate of the remaining useful life should now be made and the portion of the cost that had not been depreciated at the beginning of the year 1941 (for a return for the year 1941) should be spread over this reestimated life.

Medical Dues.—Due paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is possessed by the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood. What has been said in respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Contributions to Charitable Organizations.—For detailed information with respect to the deductibility of charitable contributions generally, physicians should consult the official return blank or obtain information from the collectors of internal revenue or from other reliable sources. A physician may not, however, deduct as a charitable contribution the value of services rendered an organization operated for charitable purposes.

Bad Debts.—Physicians who make their returns on a cash receipts and disbursements basis, as most physicians do, cannot claim deductions for bad debts.

Taxes.—Taxes generally, either federal or state, are deductible by the person on whom they are imposed by law. Both real and personal property taxes are deductible; but so-called taxes, more properly assessments, paid for local benefits, such as street, sidewalk, and other like improvements, imposed because of and measured by some benefit inuring directly to the property against which the assessment is levied, do not constitute an allowable deduction from gross income.

Physicians may deduct state gasoline taxes if such taxes are imposed on the consumer or user rather than on the seller or distributor. The same is true with respect to state sales taxes. In some states these taxes are imposed on the seller and, even though they may be passed on to the buyer, the latter may not deduct them. The federal gasoline tax is not imposed on the user and hence cannot be deducted by him.

State income and use taxes are deductible; federal income taxes are not. Among the federal taxes that a physician may deduct are those on admissions, dues, initiation fees, safety deposit boxes and tax on telegraph, telephone, cable and radio messages. State automobile license fees are deductible. If a state or local fee is imposed for regulatory purposes, and not to raise revenue, the fee may not ordinarily be deducted as a tax. If such fees, however, are classifiable as a business expense, they are deductible as such. Annual registration fees imposed on physicians probably come within the category of regulatory fees and should be deducted as a business expense rather than as taxes. Local and state occupational taxes imposed on physicians are deductible either as taxes or as a business expense, depending on the purpose for which the tax is imposed.

The excise taxes imposed on employers by section 804, title VIII, and section 901, title IX, of the Social Security Act, commonly referred to as old age and unemployment benefit taxes, are deductible annually by employers in computing net income for federal income tax purposes. If the taxpayer's return is made on a cash basis, as are the returns of practically all physicians, the taxes are deductible for the year in which they are actually paid. If the return is made on an accrual basis, the taxes are deductible for the year in which they accrue, irrespective of when they are actually paid. Employees, including physicians whose employment brings them within that category, may not deduct the tax imposed on them by section 801, title VIII, of the Social Security Act, generally referred to as the old age benefits tax. If, however, the employer assumes payment of the employee's tax and does not withhold the amount of the tax from the employee's wages, the amount of the tax so assumed may be deducted by the employer, not as a tax paid but as an ordinary business expense.

Equipment Necessitated by Military Service.—The cost of equipment of an Army officer to the extent only that it is especially required for his profession and does not merely take the place of articles required in civilian life is deductible. Accordingly, the cost of a sword has been held to constitute an allowable deduction, but the cost of a uniform is considered a personal expense and hence not deductible.

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any

automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expense incurred in the defense of a suit for malpractice is deductible as a business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

CORRESPONDENCE

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

St. Louis, Mo.
February 19, 1942

To the Editor:

For the purpose of studying the present day problems in obstetrics and gynecology and working toward a solution of these problems, an American Congress on Obstetrics and Gynecology was held in 1939. The second Congress will be held in St. Louis, April 6 to 10, 1942. The Congress is planned to present the medical, nursing and health aspects of human reproduction, maternal and neonatal care from the scientific, practical, educational and economic viewpoints.

This second Congress is being held at the present time with the particular hope that it may promote the adequate care of mothers and babies during this time of war. Not only will the program be directed to the obstetrician and gynecologist who wish only the most intricate and newest developments, but also for all general physicians who are in this field whether specialists or not.

With the belief that there are few men in the practice of medicine who will not profit from attendance at the session, physicians in Missouri, to whom the Congress is especially accessible this year, are invited to become members of the second American Congress on Obstetrics and Gynecology. A remittance of $5.00 entitles the physician to register at the St. Louis session as well as a year's membership in the American Committee on Maternal Welfare, the principal organization of the fifteen organizations sponsoring the Congress. Checks should be directed to The Second American Congress on Obstetrics and Gynecology, 650 Rush Street, Chicago, Illinois.

I believe physicians will gain much practical information from the Congress and I will appreciate the publication of this letter urging Missouri physicians to become members of and attend the Congress.

Sincerely,
E. Lee Dorsett, M.D.,
State Chairman on Membership.

St. Louis, Mo.
February 14, 1942.

To the Editor:

In the recent article published in The Journal of the Missouri State Medical Association, volume 39, page 45, "The Effect of Mineral Water on Kidney Function Tests," it was stated through a mistake in the manuscript that the article came out of the Department of Internal Medicine of the School of Medicine of St. Louis University. This was an error. The article was not submitted to the Departmental Director and, therefore, was not approved by the Departmental Director or the University.

The authors earnestly request the publication of this letter in the March issue of The Journal.

Yours truly,
R. O. Muether, M.D.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

Moniteau County Medical Society, December 23, 1941.

Miller County Medical Society, December 26, 1941.

Chariton County Medical Society, December 29, 1941.

Montgomery County Medical Society, January 20, 1942.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Nodaway-Atchison-Gentry-Worth Counties Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society met for a dinner meeting at the Linville Hotel, Maryville, February 2, with the president, Dr. Charles T. Bell, Maryville, presiding.

Members present were Drs. Henry C. Bauman, Fairfax; Claude D. Haskell and Clifton M. Waugh, Tarkio; Francis R. Anthony, Charles T. Bell, Joseph M. Boyles, Hiram Day, Leslie E. Dean, Loren E. Egley, Wm. R. Jackson and William M. Wallis, Maryville; Joseph C. Manning, Skidmore; Charles D. Humberd, Barnard, and Pren J. Ross, Grant City. Guests present were Drs. Walter Myers, Savannah; A. S. Bristow, Princeton; Richard L. Sutton, Jr., Kansas City; Charles H. Flynn and P. E. Newport, Clarinda, Iowa; J. H. Gasson, Shenandoah, Iowa; R. B. Reed, Clearfield, Iowa; and Jesse Miller, D. J. Thomas, E. L. Thomas and Roy Gromer, dentists, Maryville.

The required motion to amend Chapter 2, Section 2, of the by-laws was discussed by the president, the popular sentiment being that an adjournment for two months at each meeting during the duration of World War II was to be preferred to an amendment to the by-laws for the same purpose.

The scientific program for the meeting was an ex-

ceptionally good paper read by Dr. Richard L. Sutton, Jr., Kansas City, on "Recent Advances in Dermatology." Dr. Sutton gave special attention to contact dermatitis with the particular idea that fungous diseases of the skin are essentially allergic in nature since the fungi are saprophytes and do not attack living cells, but their host becomes allergic to the products of their metabolism. He also gave an extended discussion on acne as a disturbance in the body's fat utilization, to be treated by low-fat diets and thyroid extract. His paper was illustrated with excellent photographic lantern slides and was discussed by Dr. Wallis, with especial reference to the menstrual exacerbations of acne. Dr. Sutton also presented three reels of an interesting travelogue.

It was voted that the Society adjourn until April 6, 1942.

A round table discussion was led by Dr. A. S. Bristow, Princeton, on the probable future developments in military affairs that will be of concern to the membership.

CHARLES D. HUMBERD, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

WILLIAM A. BLOOM, FAYETTE, COUNCILOR

Central Missouri Clinical Society

The Central Missouri Clinical Society met for a dinner meeting at Moberly, January 28, with the Randolph-Monroe County Medical Society as hosts. There were sixty-one present.

Dr. C. R. Bruner, Columbia, president, and Dr. T. P. Eberhard, Columbia, secretary, of the newly formed clinical society, which includes Audrain, Boone, Cooper, Callaway, Howard, Monroe and Randolph counties, were present and made short addresses.

Dr. W. A. Bloom, Fayette, Councilor of the Fifth District, was present and made a short address on the Procurement and Assignment Service.

Dr. R. L. Sutton, Jr., Kansas City, spoke on "Diagnosis and Differential Diagnosis of the More Common Skin Diseases and Allergic Conditions," illustrated with slides. He also spoke on and showed a few slides on "Acne." After the medical meeting, Dr. Sutton showed some motion pictures of hunting in Africa and India, and other pictures which were taken while on a trip around the world.

Those present were Drs. H. E. Allen, D. A. Robnett, C. R. Bruner, W. P. Dysart, Wm. J. Stewart, H. M. Young, R. Simpson, A. W. Kampschmidt, T. P. Eberhard, M. E. Cooper, W. B. Brown, D. V. LeMone, Karl D. Dietrich, N. R. Zeigler, H. L. Motley, M. D. Overholser, F. C. Suggett, O. F. Bradford, R. L. Crouch, D. G. Stine, Columbia; A. R. McComas, Sturgeon; F. W. Barden, Centralia; J. F. Griffin, R. S. Williams, H. C. Brashear, K. E. Maneval, J. Frank Jolley, Mexico; W. M. Dickerson, Armstrong; W. A. Bloom, Fayette; J. C. Tincher, M. S. McGuire, T. C. Beckett, George W. Blankenship, Boonville; A. L. Meredith, Prairie Home; G. L. Chamberlain, New Franklin; James Boley, Pilot Grove; R. N. Crews, P. S. Tate, G. F. Wood, Fulton; M. C. McMurry, George M. Ragsdale, F. A. Barnett, Paris; H. C. Griffiths, Thomas S. Fleming, L. E. Huber, C. C. Smith, M. E. Leusley, L. O. Nickell, M. R. Noland, F. L. McCormick, Moberly; P. V. Dreyer, Huntsville; J. P. Allen, Cairo; J. B. Stokes, Excello; G. E. Grim, Kirksville.

F. L. MCCORMICK, M.D., Secretary.

A review of scientific literature since 1935 shows that mapharsen is less toxic than neoarsphenamine in the treatment of syphilis, Edward A. Levin, M.D., and Frances Keddie, M.D., San Francisco, report in *The Journal of the American Medical Association* for January 31.

BOOK REVIEWS

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. Editors: H. Letheby Tidy, M.A., M.D. (Oxon.), F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. Fifty-eighth Year. Baltimore: The Williams and Wilkins Company. 1940. Price $6.00.

This book is a very complete encyclopedia of medical problems of today. The treatment of the subjects while concise is quite complete. It could be suggested that many subjects not included would make the annual more complete. W. G. B.

MATERNAL CARE AND SOME COMPLICATIONS. The Principles of Antepartum, Intrapartum, and Postpartum Care and of the Management of Some Serious Complications. Approved by The American Committee on Maternal Welfare, Inc. Prepared by W. C. Danforth, M.D., G. W. Kosmak, M.D., R. D. Mussey, M.D., R. L. DeNormandie, M.D., F. L. Adair, M.D., P. F. Williams, M.D., and F. H. Falls, M.D. F. L. Adair, M.D., Editor. Chicago: The University of Chicago Press. 1939. Price $1.50.

This book is written for the general practitioner who is doing obstetrics. The authors are members of the American Committee on Maternal Welfare and they set forth the basic principles of maternal care and of the management of three major complications.

This volume is divided into two sections. The first section, Maternal Care, deals with prenatal care, the management of the three stages of labor and postpartum care. The second section deals with the major complications of maternal care, that is, toxemia, hemorrhage and infection. The etiology, diagnosis and treatment of these conditions are discussed. C. O. McC.

BACILLARY AND RICKETTSIAL INFECTIONS, ACUTE AND CHRONIC, A TEXTBOOK. Black Death to White Plague. By William H. Holmes, Professor of Medicine, Northwestern University Medical School, Chairman, Department of Medicine, Passavant Memorial Hospital, Chicago. New York: The Macmillan Company. 1940. Price $6.00.

The reviewer was so impressed by this book that he has bought a copy for his own library. It is called a textbook but it will find its place more as leisure hour reading for the already graduated physician. The reviewer has lent this book to several lay persons who have found it interesting reading.

The author has avoided the outline-like brevity and the narrow specialization of the ordinary text. He was evidently a man of wide cultural background. In his discussion of plague he quotes an excerpt from Boccaccio's "Decameron," explains that Boccaccio was the world's first "professor of modern literature," and mentions that Petrarch's Laura died of plague. His discussion of the epidemiology of plague includes such items as plague contributing to the failure of Xerxes and his Persian hordes to conquer Greece and to the failure of Napoleon to conquer Prussia. He mentions such practical things as four methods of poisoning rats with the advantages and disadvantages of each.

The book is organized on the basis of etiology. The discussion of each disease begins with an extended account of its place in world history and a history of the development of knowledge of the disease. Next follows epidemiology and methods of prevention. Then comes the pathology, the clinical course and the treatment.

The amount of clinical information is ample for a textbook of medicine. History and epidemiology also are treated fully. However, the reviewer believes the

pathology and bacteriology would be difficult to assimilate without previous knowledge of these subjects.

It is exceedingly unfortunate that the author is now dead. He had promised to write a companion volume to cover the remainder of the infectious diseases.

D. J. S.

Synopsis of Applied Pathological Chemistry. By Jerome E. Andes, M.S., Ph.D., M.D., F.A.C.P., Director of Department of Health and Medical Advisor, University of Arizona, Tucson, etc., and A. G. Eaton, B.S., M.A., Ph.D., Assistant Professor of Physiology, Louisiana State University School of Medicine, New Orleans. With 23 Illustrations. St. Louis: The C. V. Mosby Company. 1941. Price $4.00.

The application of chemistry to clinical medicine is perhaps one of the most important developments of this decade. This development has been so rapid that it has been difficult for busy physicians to keep up with the advances. The book "Synopsis of Applied Pathological Chemistry," has been made to order for such physicians. It is also a valuable compendium for medical students as well as advanced students of nursing and medical technicians.

The explanations of procedures are clear and concise and the methods outlined have been chosen with care and for the most part seem to be the best available at this time.

It is the reviewer's opinion that the book may be safely recommended as a synopsis of applied clinical chemistry. R. O. M.

Handbook of Communicable Diseases. By Franklin H. Top, A.B., M.D., M.P.H., Director, Division of Communicable Diseases and Epidemiology, Herman Kiefer Hospital and Detroit Department of Health, etc., and Collaborators. With 73 Text Illustrations and 10 Color Plates. St. Louis: The C. V. Mosby Company. 1941. Price $7.50.

The method of classification of the diseases discussed in the "Handbook of Communicable Diseases" represents a departure from the ordinary systems used since the author discusses the diseases by portal of entry rather than by the type of bacteria or virus which causes the disease. This departure reflects no doubt the author's experience as a teacher since the reviewer has found this method effective in his own teaching.

The content of the book has been well chosen and unimportant data has been omitted while excellent although brief chapters on immunization, epidemiology and the control of communicable diseases have been included.

The beautiful colored photographs deserve special mention since they are the finest to appear in such a work as this for a long time. R. O. M.

Textbook of Pediatrics. By J. P. Crozer Griffith, M.D., Ph.D., Emeritus Professor of Pediatrics in the University of Pennsylvania; Consulting Physician to the Children's Hospital, Philadelphia, etc., and A. Graeme Mitchell, M.D., B. K. Rachford, Professor of Pediatrics, College of Medicine, University of Cincinnati; Medical Director and Chief of Staff of the Children's Hospital of Cincinnati. Third Edition, Revised and Reset. Philadelphia and London: W. B. Saunders Company. 1941.

This is one of the standard textbooks of pediatrics. It has been rewritten completely since the last edition appeared four years ago. In order to cover the field of pediatrics authoritatively and at the same time to insure uniformity of style the authors have written the book themselves, but have submitted many sections to experts in special fields for criticism and editorship. This unusual procedure has worked out very well.

The title of the book has been changed from "Diseases of Infants and Children" to "Textbook of Pediatrics," because pediatrics has come to include not only disease but mental and physical development and the care of normal infants and children. Thus the book includes sections on these subjects. There is also a chapter on pediatric institutions and organizations. The various diseases affecting infants and children are considered fully, in fact almost encyclopedically.

It is unfortunate that one of the authors of this book, Dr. Graeme Mitchell, has recently died. D. J. S.

Microbes Which Help or Destroy Us. By Paul W. Allen, Ph.D., Professor of Bacteriology and Head of the Department, University of Tennessee; D. Frank Holtman, Ph.D., Associate Professor of Bacteriology, University of Tennessee, and Louise Allen McBee, M.S., Formerly Assistant in Bacteriology, University of Tennessee. With 102 Illustrations and 13 Color Plates. St. Louis: The C. V. Mosby Company. 1941. Price $3.50.

This is an excellent book for lay people interested in the story of infections and other aspects of bacterial invasions. The book is interestingly written and brings out the good and the bad of bacteria and their toxins.

In adult study groups as well as in high schools and junior colleges this book unquestionably will find a place.

It's factualness along with the easy style should make it a best seller. R. O. M.

The Value of Health to a City. Two Lectures Delivered in 1873. By Max Von Pettenkofer. Translated From the German With an Introduction by Henry E. Sigerist. Baltimore: The Johns Hopkins Press. 1941. Price $1.00.

The value of health to a city is always a timely subject. Although the two lectures by Pettenkofer were delivered in 1873, the subject matter is as interesting and practical today as it was then. His analysis of the causes of the high morbidity and mortality in Munich reveals that the economic approach to medical problems today is not new. His remedies for the lowering of both the morbidity and mortality in Munich which eventually proved effective, could be applied to a city today without much modification.

The reviewer agrees with the words of the translator, "These two lectures are a splendid document of the heroic days of modern public health. They are a classic not only of medical economics but of public health at large."

The reviewer heartily endorses the reading of these lectures to all those interested in public health.

H. I. S.

Effective Living. By C. E. Turner, A.M., Sc.D., Dr.P.H., Professor of Biology and Public Health, Massachusetts Institute of Technology; Formerly Associate Professor of Hygiene, Tufts Medical and Dental Schools; Formerly Director of Health Education Studies, Malden, Massachusetts, etc., and Elizabeth McHose, B.S., M.A., Director of Physical Education for Girls and Chairman of the Health Council, Senior High School, Reading, Pennsylvania. With 164 Illustrations. St. Louis: The C. V. Mosby Company. 1941. Price $1.90.

This text written for the general knowledge of the individual, particularly the younger one, in regard to the essential factors concerned in "Effective Living," stresses the different points in the development of good health, sound minds and true personalities.

All phases of health and its relationship to the family life, community life, industrial welfare are dealt with in some detail. Each one of the various organs of the body and how they are altered in the various

disease processes are discussed. The various systems of the body are discussed with their relation to disease. The value of exercise, sleep and the use of various drugs, particularly those that are harmful to the individual, are discussed with particular emphasis on those drugs that are habit forming. In the discussion of the systems in disease the normal and abnormal physiology is explained.

The various factors that are involved in the maintenance of good city health are touched upon as well as a treatise on the various infectious diseases, particularly those that are apt to break out in epidemic form. An outline of treatment of these diseases is given as well as the symptoms of the various infections. One section is devoted to the fundamentals of first aid.

The text is clearly written and understandable. It would be a valuable adjunct for the individual, both young and old, and would be particularly adaptable for textbook use. A. E. U.

METHODS OF TREATMENT. By Logan Clendening, M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas, etc., and Edward H. Hashinger, A.B., M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas, etc. Seventh Edition. St. Louis: The C. V. Mosby Company. 1941. Price $10.00.

The seventh edition of Clendening and Hashinger's "Methods of Treatment," while retaining the general plan of the former editions, is an entirely new book. Many new chapters have been added and the old ones have been revised and brought up to date. The first part of the book takes up the use of drugs, sera and vaccine, the chemotherapy of the coccal diseases, psychotherapy and physical therapy, massage, climatology and heliotherapy. The use of oxygen is described and its indication and contraindication emphasized. Spinal procedures, such as artificial pneumothorax, lumbar and cistern punctures, manipulation of the back for backache, are all described in great detail.

The second part takes up the application of these drugs and procedures in the treatment of the various diseases. The text is often enlivened by comments and anecdotes told in the style for which the senior author is famous. In many instances quotations of historical interest from the old masters are given. This volume is one of the best guides for the treatment of internal diseases which has come to the reviewer's attention.

L. H. H.

AN INTRODUCTION TO MEDICAL SCIENCE. By William Boyd, M.D., M.R.C.P. (Edin.), F.R.C.P. (Lond.), Dipl. Psych., F.R.S. (Canada), Professor of Pathology and Bacteriology in the University of Toronto, Toronto, etc. Second Edition, Thoroughly Revised. Illustrated with 124 Engravings. Philadelphia: Lea & Febiger. 1941. Price $3.50.

This textbook for nurses is now in its second edition. It brings up to date the text of the first edition and adds a valuable chapter on the evolution of medical science.

Any attempt to crowd the entire field of clinical medicine into three hundred and fifty pages is open to a great deal of criticism. But as its purpose is to give the student nurse an introduction to disease processes it must be judged differently. From this point of view it well fulfills its purpose. The language at no time becomes too technical and the student of nursing should always find the material entirely within her grasp.

The chapter on medical history, unfortunately, does not give the student an appreciation of the romance of medical history; and this is even more true in the later chapters.

As a cursory look into the broad field of medicine this book fulfills its purpose. M. N. O.

DISEASES OF THE THYROID GLAND. Presenting the Experience of More Than Forty Years. By Arthur E. Hertzler, M.D., Surgeon to the Halstead Hospital; Professor of Surgery in the University of Kansas. With 495 illustrations. New York, London: Paul B. Hoeber, Inc., Medical Book Department of Harper and Brothers. 1941. Price $8.50.

In the beginning Hertzler says that this book was written as an answer to criticism. His answer consists of telling what he has done and what happened to the patients. He could have answered in the same spirit and words in which the criticism was given, but I do not think he would care to do this. He remembers that a rebuke to a wise man is more than a hundred lashes to a fool.

As a book of reference, it is on a par with Teddy Roosevelt's history of the Spanish-American War, "Alone in Cuba." This, of course, is intentional with the author. However, most readers who belong to the mediocre majority, are hero worshipers at heart and like to see Bassini's name associated with hernia. When I reread that in 1884 Rehn said that exophthalmic goiter was relieved by removing the thyroid gland, but he did not know why, I pay tribute to him.

In the years to come one may say with pride that the almost universal acceptance of total thyroidectomy resulted from the pioneer work done by Hertzler. Regardless of the facts, the acceptance of total thyroidectomy will be slow. There are many reasons for this: Subtotal thyroidectomy is easier to do and has a lower mortality. The immediate results are almost the same. The ultimate results do not present a problem until later. So it may be argued that a physiological balance has been secured for the patient. And if time and chance disturb it, then it can be dealt with. All of this does not prove that subtotal thyroidectomy is best for the patient.

Hertzler's ideas about myxedema and his recommendation of total thyroidectomy for some types of the affection afforded an opportunity for criticism by the uninformed. Many years ago Neudorfer stated that certain types of myxedema were cured by toxins formed in the thyroid, and cured one case by hemithyroidectomy, thereby out-Hertzlering Hertzler.

The preoperative and postoperative advice is accepted practice clearly stated. I see that the first step for the intelligent use of glucose has been arrived at, namely: when glucose is given to the patient who has severe thyrotoxicosis and a badly damaged liver, the glucose spills over in the kidneys and the blood sugar goes to 250 or 300, and remains high for an abnormally long time. Ravdin and his coworkers (1941) point out that glucose does harm when the liver is damaged. Their clinical advice, in my opinion, is good, but their explanation totally inadequate. A review of some of the work done some forty-five years ago, especially Von Noorden's theory of glucose metabolism and Jacobi's method for combating and diminishing the effects of excessive autolysis and heterolysis, will aid materially in clearing up this subject.

The chapter on anatomy is the best found in any book. The trouble with anatomy is that human beings are not standardized. As Hertzler says, sometimes when there should be one or two veins as many as five are found. Also the pathology distorts the anatomy. The recurrent laryngeal nerves are adequately considered. Hertzler formerly always exposed them; now he is not so particular about seeking their location. He neglects to say what he does when the recurrent nerves are not recurrent but go into the larynx from above.

The operative technic is described in detail. It is about the same as used by those who follow the Kocher, Hertzler, von Eiselberg, Hilderbrandt, Halstead and Lexer schools. In simplified form the technic actually used by most operators of long experience amounts to this: Begin at the skin and continue to cut and tie until the thyroid is found. Then keep as close to the thyroid as possible but do not get within the capsule. Continue

to clamp, cut and tie, always close to the capsule. Then clamp, cut and tie some more. After a while the thyroid comes out. If the operator removes only what is contained within the capsule of the thyroid he need not worry about parathyroids or recurrent laryngeal nerves, the statements of Lahey to the contrary notwithstanding.

Hertzler sits on a stool, or is it a chair, when he operates. This may be beneficial for some operators. A rifleman shoots a better score sitting, lying down or with a rest than when shooting "off-hand."

When I finished reading this book, I again realized the extent and quality of the work Hertzler has done on goiter and I pay tribute to him. Why did he do it? Obviously not for money. Perhaps he is like Jack London's dog who had pulled the sled so long that he was not happy unless he continued to pull it. Or perchance Milton was right when he said: "Fame is the spur that drives men on to scorn delight and live laborious days."

J. G. S.

Clinical Immunology Biotherapy and Chemotherapy in the Diagnosis, Prevention and Treatment of Disease. By John A. Kolmer, M.S., M.D., Dr.P.H., Sc.D., LL.D., L.H.D., F.A.C.P., Professor of Medicine, Temple University School of Medicine; Director of the Research Institute of Cutaneous Medicine, and Louis Tuft, M.D., Assistant Professor of Medicine and Chief of Clinic of Allergy and Applied Immunology, Temple University School of Medicine. Illustrated. Philadelphia and London: W. B. Saunders Company. 1941. Price $10.00.

This volume is concentrated from a great mass of accumulated knowledge. Since about one half of disease is produced by infection, it follows that this book on infection is ambitious in scope. The reviewer feels that the subjects are well treated and it would be particularly valuable to the practicing physician who is a few years away from the laboratory and university cloister. There is something new or a thought crystalized in a new light on nearly every subject dealt with. The book is excellent, read either as a volume or as ready reference in the summary blocks. F. H. W.

The Furtherance of Medical Research. By Alan Gregg, M.D., Director for the Medical Sciences at the Rockefeller Foundation. New Haven: Yale University Press. 1941. Price $2.00.

Gregg has written a book which should be read by anyone even remotely interested in the future of medicine and of medical research. He is a foundation director with an unusual understanding, not only of his own problems but the problems of the universities, the commercial research units, and the individual research worker.

The book is couched in such terminology that the laity and professional men alike may read it with satisfaction. Certainly the would-be philanthropist and the reformer should read it.

What does this volume contain to arouse such enthusiasm? It is divided into three parts. The first part deals with a description of medical research and describes good and bad manners in research. The author takes time to give a pat on the back to the men who carry on with important but nonspectacular problems while giving a swat to the "razzle-dazzle" boys who flare across the sky like a rocket but lack the staying power to carry through. The definitions of research which are developed from writings of great research workers cast a new light on the attitudes and objectives of medical research.

The second part deals with universities and foundations. The author points out the weakness and the strength of foundations. He emphasizes the relationship and importance to the universities. He cries out, with entire justice, against the indiscriminate founding of foundations and the deprivation of universities of funds which they could properly use. He "puts the finger of scorn" on the short term grant and shows the fallacy of such grants with vivid clarity.

The third part deals with the medical research worker, what he is, what he does and what he aspires to do. Here the author demonstrates the clarity of his thoughts by emphasizing again and again that the research, universities, foundation, all depend in the last analysis on the men who do the work and to a very secondary extent on their buildings and physical assets.

With this brief and entirely inadequate review, I close with the sincere hope that the readers of the review will be stimulated to procure the book which consists of only one hundred and twenty-one pages and read it carefully, obtaining in that way the full benefits of its cool logic and its absolute fairness. R. O. M.

Psychotherapy. Treatment That Attempts to Improve the Condition of a Human Being by Means of Influences That Are Brought to Bear Upon His Mind. By Lewellys F. Barker, M.D., Emeritus Professor of Medicine, Johns Hopkins University; Visiting Physician, Johns Hopkins Hospital, Baltimore, Maryland. New York, London: D. Appleton-Century Company, Incorporated. 1940. Price $2.00.

This small, handy volume of 218 pages would make a convenient manual for any practicing physician, medical student, social service worker or psychologist. Dr. Baker needs no introduction to physicians interested in medical literature. I quote his first few lines of Chapter 1, "The writing of a small volume of psychotherapy, the contents of which will be understandable by general practitioners of medicine and by intelligent laymen, is no easy task." The author further states that psychotherapy has been used in functional and organic illnesses by medical men, religious cults and laymen since the very earliest times. He is generous to the various schools of this kind of treatment but leans heavily toward the method advocated by Dr. Adolph Meyer.

The chapter on heredity and environment is comparatively short but interestingly instructive. Chapter 5, bearing on the various methods of psychotherapy, is valuable. Not all of the methods are described but the important ones are given brief critical consideration. His analysis of the Freud's system of psychoanalysis should have the respect of the average neuropsychiatrist and general practitioner even though it would be far from satisfactory to the thorough-going Freudian. A splendid glossary gives definitions for the most important terms used by psychoanalysts. An unusually large bibliography for such a small book is appended. The author admits that the literature relative to psychotherapy is enormous and that he has not had the time to review all the articles and books. A. L. S.

Arthritis and Allied Conditions. By Bernard I. Comroe, A.B., M.D., F.A.C.P., Instructor in Medicine, University of Pennsylvania; Senior Ward Physician Hospital of the University of Pennsylvania. Second edition, thoroughly revised. Illustrated with 242 engravings. Philadelphia: Lea & Febiger. 1941. Price $9.00.

This text deals with its subject in a logical and concise manner. Each heading is well outlined and virtually another text in itself. The various types and classes of arthritic deformities are discussed in logical sequence and completely described as to possible etiology, pathology and treatment. The section on atrophic arthritis is really a text in itself. Particularly interesting in this case is the author's willingness to enclose in his manuscript all the various methods of treatment for the disease that are used by reputable men over the country, whether he can subscribe to them personally or not. This is a trait that worthily could be emulated by other authors of medical treatises. R. S. C.

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SYMPOSIUM ON MATERNAL WELFARE

CESAREAN SECTION

S. D. SOULE, M.D.

ST. LOUIS

Unquestionably it is of great importance that an obstetric procedure which formerly carried a maternal mortality rate of approximately 10 per cent has been so improved as to yield a mortality of between 1 and 3 per cent in many hospitals. The factors involved in this reduction of the dangers of cesarean section are numerous. Selection of cases for operation, appreciation of the problem concerned with infection, the selection of the type of operation, improvement of technic, reservation of cesarean section to the trained obstetrician and other factors play an important role in the increased safety of cesarean section.

However, one must realize also that to a certain great extent the reduction in maternal mortality is due to the increase in the number of elective cesarean operations which have been done in progressively greater numbers under these improved conditions. These operations performed in clean cases with no active labor, or at least a rigidly controlled "test of labor," naturally carry a lower mortality rate.

Furthermore, cesarean operations are being reserved increasingly to the obstetrician who is particularly skilled in this technically quite simple but nevertheless dangerous operation. Any procedure which carries a mortality rate of from 1 to 3 per cent in the very best hands must yet be considered as dangerous. The skill involved consists in an evaluation of obstetric judgment as to when a cesarean is necessary, when to do the operation, preliminary safeguards and, finally, the actual technical procedure.

Fundamentally, the possible indications for a cesarean operation are no more numerous than they were a decade or more ago. However, the factors mentioned, which have influenced the dangers of the operation favorably, have made it possible to perform this procedure in an ever increasing number of cases which previously might have been allowed to terminate through the natural passages. An individual attitude toward indications will exist, with different observers taking a more conservative or more radical attitude toward the same given problem. Thus, whereas the incidence of cesarean section in former decades was noted to be usually between 0.5 and 1 per cent of all obstetric deliveries, it is now not unusual to read of an incidence of 5 per cent or even more. The explanation of this increase of incidence is sometimes difficult.

The most frequent indication today is the same as it was formerly; namely, disproportion between the size of the fetal presenting part and the maternal pelvis. This disproportion might be absolute wherein the bony pelvis is so small as to preclude possibility of delivery of a normal child, or might be relative or potential. Cephalo-pelvic disproportion possibly does not occur any more frequently today than it did formerly but obstetricians are more prone to terminate a pregnancy by cesarean now in the interest of a live baby than they were before. The study of these borderline cases is extremely difficult and undoubtedly today many a cesarean section is performed in a case which formerly would have been handled through the normal passages, possibly successfully.

Indication for cesarean section for obstructing tumors and malignancy is no different than ever. Cesarean section as a treatment for eclampsia has been replaced generally by a more conservative

From the Department of Obstetrics and Gynecology, Washington University School of Medicine, and the St. Louis Maternity Hospital.

regime. Seldom today is cesarean section performed for toxemia of pregnancies.

Placenta previa is an ever increasing indication for operation. This is one indication in which cesarean section is indicated without regard for the child but in the interest of the mother. It is my feeling that all cases of central placenta previa regardless of the parity of the mother be terminated by cesarean section. The few possible exceptions to this belief would be a cervix which is considerably dilated or dilatable. In the lesser degree of placenta previa, the factors which influence decision on cesarean section include the condition of the cervix, period of gestation, condition of the mother and available facilities for operation and transfusion. Generally, there is a greater place for cesarean section in placenta previa than was customarily reserved for it.

Throughout current writings on cesarean section, because of the increase in incidence of the operation, one discovers more and more the performance of the operation with an indication of previous operation as the reason for performing the second operation. Cesarean section must be done cautiously because the individual will be subjected to this danger with each succeeding pregnancy until finally she is sterilized at the time of some subsequent operation.

The classical type of cesarean section has been supplanted gradually by the low flap type of operation. It has been granted, generally, that the low cervical cesarean is to be preferred in all cases which have been in labor, in those cases in which the membranes have ruptured or in any case in which infection may be considered possible.

If such reasoning be accepted as true, it is only reasonable to perform the low flap operation in all cases. What is considered to be good in times of danger should be equally satisfactory in the clean case.

In several hospitals, the low cervical operation with the incision made transversely in the lower uterine segment is preferred to the longitudinal incision. The incision certainly can be kept entirely within the lower uterine segment with a transverse incision; exposure is excellent; and should the removal of the child be a preliminary to removing the uterus (Porro section), the transverse incision is to be preferred. Some observers have reported a higher incidence of ruptured scar with the transverse incision but this has not been the experience at the St. Louis Maternity Hospital.

Titus states that "one of the greatest factors in the high maternal mortality rate in this country is the injudicious and unwarranted abuse of cesarean section."

An honest evaluation of the subject of cesarean section leads one to reiterate, first, the necessity of careful consideration of indications and contraindications before deciding on this procedure and, second, that only in the hands of the skilled obstetricians does this operation approach the best mortality figures. The simplicity of the technic should not lead the general practitioner to adopt this procedure too frequently and in general he will have much better results avoiding rather than adopting the operative method of terminating pregnancy.

205 Lister Building.

TETANUS FOLLOWING CRIMINAL ABORTION WITH RECOVERY

RALPH R. WILSON, M.D.
JAMES B. KEELER, M.D.
AND
PAUL F. STOOKEY, M.D.
KANSAS CITY, MO.

Tetanus as a complication of criminal abortion is apparently rare as revealed by the small number of cases reported. Bush[2] recently reported five cases. In a series of 111 cases reviewed by him, a mortality of 91 per cent was found. Komarony[9] reported one case. Mattson and Starkey[10] reported one case with recovery. In the French and German literature, reported cases are encountered more frequently.[1,2,4,5,6,7,11] Knight[8] reports that in one province in India tetanus causes 0.8 maternal deaths per 1,000 births. In the Kansas City Municipal Hospital No. 1, one case of tetanus has been encountered in 1,844 abortion cases admitted since 1927, an incidence of .05 per cent.

From the Department of Obstetrics and Gynecology in collaboration with the Contagious Division, Kansas City Municipal Hospitals, Kansas City, Missouri.

CASE HISTORY

A woman, aged 28, para IV, gravida VII, entered the Kansas City General Hospital June 21, 1941. She had had two induced abortions which were complicated by chills and fever. Her last menstrual period was March 8. On June 6 an abortionist introduced instruments into her uterus, followed by a gauze pack. The fetus was passed the next day. On June 9 and 10, the patient had shaking chills. On June 11 another pack was introduced. This was removed the following morning and after three days of moderate flow, bleeding ceased. She felt well until June 20 when she noticed an aching of her jaws accompanied by inability to chew or swallow, sore throat and aching between her shoulder blades. These symptoms grew worse and she sought medical attention on June 21. No history of any laceration, puncture wounds or trauma of any nature to her body in the two months preceding the onset of symptoms could be elicited.

On admission to the hospital, physical examination

revealed a well developed and nourished white female who did not appear acutely ill. She was very apprehensive. The masseter muscles were rather firm when palpated and the patient was able to open her mouth only about 1.5 cm. Fluids by mouth were regurgitated through the nose. The neck muscles were moderately rigid. Examination of the reflexes revealed Chvostek's sign to be positive. Tendon reflexes were physiologic with the exception of a hyperactive patellar reflex. Koernig's sign and Trousseau's sign were negative. There was no ankle clonus. Pelvic examination revealed a mildly lacerated cervix with a purulent sanguineous discharge from the os. The uterus was firm, symmetric and enlarged two and one half times. It was anterior but displaced to the right by an indefinite parametrial thickening on the left. The remainder of the general physical examination gave essentially normal findings.

LABORATORY

Blood examination showed a hemoglobin of 68 per cent (Haden-Hausser), with red cell count of 3,470,000. Leukocytes were 9,350, with a normal differential count. Urine was normal. Blood sugar, non-protein nitrogen and creatinine were within accepted normals. Total serum was within normal limits with an albumin-globulin ratio of 1.64. Blood Wassermann tests were 3 plus and 4 plus, but were negative at release. Lumbar puncture revealed a clear fluid under pressure of 180 mg. of water, with a cell count of six. Total spinal fluid was 39.3 mg. per 100 cc.; sugar was 100 mg. per 100 cc., and chlorides 743 mg. per 100 cc. Spinal fluid serology and colloidal gold curve were negative.

Cervical smears taken at the time of admission were negative for organisms suggestive of Clostridium tetani. Cervical culture at that time was negative for growth under aerobic conditions. Uterine cultures were taken two days later by means of a drinking-tube arrangement. The material obtained was placed on anerobic spray plates with blood agar, in deep tube brain-broth, on blood agar in carbon dioxide jar and in brain-heart infusion broth with vaseline seal. The attempt to isolate the offending organism revealed only a dominant saprophytic spore-forming aerobe. No Clostridium tetani were found.

CLINICAL COURSE AND TREATMENT

A tentative diagnosis of tetanus was made by a consultant and the patient was transferred to the isolation ward. She was given sodium luminal intramuscularly and, after a skin test, 1 cc. of tetanus antitoxin was given deep into the muscle, which was followed by 180,000 units of tetanus antitoxin intravenously in 5 per cent glucose solution in normal saline.

The patient's condition the following morning was worse. Trismus was definite and neck muscles were rigid. The patient was unable to open her mouth over 1 cm. There was a marked risus sardonicus. She lay rigidly in bed on her back and cried out when any attempt was made to move her. Her head was drawn back and stiffness of the back approached opisthotonos in character. She slept fitfully.

Her condition was unchanged on the morning of June 23. Sodium luminal, grains 4, was given intramuscularly every eight hours. Another 40,000 units of tetanus antitoxin was given intravenously. Fluids taken by mouth were still regurgitated through the nose. Sedation was continued and on the following day some improvement was noted. There was less rigidity of the masseter and neck muscles. Improvement from this time was slow but progressive.

On June 26, again after skin sensitivity test, she was given 40,000 units of tetanus antitoxin in the same medium previously used. She began to take small quantities of food by mouth. There was gradual relaxation of the masseter and neck muscles.

On July 2, 50,000 units of antitoxin were given intravenously after making skin sensitivity test. Improvement continued. She was discharged on July 20, her twenty-ninth hospital day.

The temperature throughout her course ranged from 99 to 100 F. with one spike of 101 degrees. It fell to normal by lysis and remained so for the ten days prior to her discharge. At the time of her discharge there was slight residual stiffness of jaws and neck. Reflexes were physiologic throughout. Pelvic examination revealed an involuting uterus in anterior position. There was slight induration and tenderness of the right utero-sacral ligament; otherwise, the pelvis was normal to palpation.

IMMUNOLOGY

Tetanus is a disease produced by the absorption of a water-soluble toxin from some foci in the body. The foci, or port of entry, is usually transient and in exceptional instances it may not be found. The period of time that elapses between the primary injury and the development of clinical tetanus is a measure of the amount of toxin elaborated by the tetanus organism and its rate of absorption. It is the accepted teaching that tetanus toxin follows the motor nerves to the central nervous system. The fact that clinical tetanus is produced by the injection of tetanus toxin into the vein of the experimental animal, with the usual fixation of toxin to cells of the central nervous system, indicates the possibility of blood-borne dissemination of toxin. The affinity of toxin for nerve tissue is marked and the reaction is irreversible.

When symptoms of clinical tetanus develop, toxin fixation to nerve cells has occurred in advance of the symptoms. Antitoxin can bind only free toxin. It should be administered intravenously in massive doses to neutralize free or unbound toxin as well as to circulate in the blood in excess in an attempt to neutralize such toxin as is being elaborated from the primary foci. Time is obviously an important element. Foreign sera is eliminated by the host from the fifth to the seventh day subsequent to administration. This fact indicates that the second dose of antitoxin, generally smaller than the first, should be administered on the sixth day subsequent to the initial dose of antitoxin.

The five cases reported by Bush[2] had incubation periods of five days and six days and the mortality was 100 per cent. Komarony's fatal case had an incubation period of seven days. In a case reported by Mattson and Starkey[10] the latent period was fourteen days, with the patient recovering. Auvray,[1] Desbonnet[4] and Ferron and Torlet[5] report cases with incubation periods of six days, four days and three days respectively, all of which resulted fatally. The cases reported by Chaouat et al.,[3] Fritch[6] and Goyer[7] had incubation periods of nine days and ten days, respectively, all recovering. In the case reported here the incubation period was calculated to be either fourteen days or nine days. Recovery ensued.

In a high percentage of reported cases antitoxin was used in large doses by various routes. In one of Bush's cases the serum was given intrathecally,

as it was in the case of Desbonnet,[4] Fritch,[6] Komarony[9] and Mattson and Starkey.[10] This had no apparent effect on the mortality. Our patient received a total of 310,000 units of antitoxin by vein and 2,000 units intramuscularly.

Goyer,[7] Auvray[1] and Ferron and Torlet[5] added surgical procedures to the treatment, Goyer's case undergoing a vaginal hysterectomy and the other two having uterine curettage. All three died, as did the patient in Bush's series[2] who was subjected to hysterectomy. Ferron and Torlet expressed the opinion that curettage might provoke convulsions and advised against operative measures.

The use of phenol as a therapeutic agent in tetanus has been discussed recently by Thompson and Friedman[12] with their own observations of its efficiency. Experimental findings indicate that its use is without value in the presence of clinical tetanus.

SUMMARY

No conclusions can be drawn from a single case, but a review of the literature, in connection with this case, serves to confirm the following observations:

1. The mortality in tetanus is more dependent upon the elapsed incubation period than upon any other factor.

2. Large doses of antitoxin intravenously definitely are indicated.

3. Antitoxin should be administered in massive doses intravenously as soon as the clinical diagnosis is established. The recent concentration of antitoxin markedly reduces the bulk of media to be administered and reduces somewhat the dangers of anaphylactic shock.

4. Careful attention to skin sensitivity tests contributes to relative safety even when massive doses of antitoxin are administered.

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ECLAMPSIA

SOME THOUGHTS ON THERAPY

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At the last meeting of the Southern Medical Association (November 1941) Dr. Bayard Carter and associates of Duke University presented a paper on comparative pathology between cases of "eclampsism with convulsions" and "eclampsism without convulsions." To many this statement would be more readily understandable if expressed as a comparison of pathologic conditions between cases of severe preeclampsia and actual eclampsia. An arresting fact resulting from this study was the great similarity in the pathologic condition found in these two groups of cases, so great indeed that it would be utterly impossible from the pathologist's viewpoint to designate to which of the two groups any given case actually belonged. Again, from the pathologist's viewpoint, there might be little reason to be too much concerned with such differentiation and he would probably be quite content to place all the cases in the same category with the simple explanation that they represent one and the same disease process.

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The clinical obstetrician, however, cannot dispose of this problem with quite the same degree of dispatch. His years of personal experience, plus that of those who have preceded him in the same field, have more or less ingrained in his thoughts the quite definite impression that preeclampsia, and even severe preeclampsia, is a less dangerous complication of pregnancy (speaking in terms of maternal and fetal mortality) than is eclampsia itself. This impression is not one that has come out of thin air. The obstetrician sees many more cases of preeclampsia, mild and severe, than he does of eclampsia and the gross mortality in the former group is less than that in the latter so the aforementioned impression would seem to be a quite logical conclusion.

One, however, simply cannot disregard the facts revealed in the autopsy findings as indicated previously. It, therefore, behooves the clinical obstetrician to pause and soberly inquire of himself, "Am I fully aware of the dangers to which the severe preeclamptic patient is subject and, if so, what am I doing about it?" Dr. Carter's report proved that the patient with severe preeclampsia may be just as

dangerously ill and in just as great jeopardy of her life as is her unfortunate sister who has had added to her already long list of unfavorable symptoms the additional ones of convulsions and coma.

If one is ready to accept this view (and there is really little if any rational basis for rejecting it) there can be but one logical corollary and that is that the severe preeclamptic patient is getting less than she deserves if she is getting any less care and attention than is given the eclamptic patient. Apparently the crux of this unfortunate confusion lies in the fact that in didactic teaching so much emphasis has been placed on strict definition and on the presence or absence of isolated components (coma, convulsions or both) of a whole disease complex that too frequently an unfortunate victim of the disease complex receives less care and attention than she deserves simply because she has failed to produce all of the symptoms of her disease simultaneously or at least soon enough to enable whoever is responsible for her care to recognize that she actually has eclampsia. Truly, strict definition is of utmost importance in proper classification. However, if and when pure definition begins to stand in the way of proper therapy of lethal disease then the time has come to deemphasize definition and make way for indicated therapy. For the clinical obstetrician, who carries the responsibility of management of these cases before they become autopsy material, there simply can be no other right attitude to assume. Since it is impossible for anyone to know with certainty which cases of severe preeclampsia will terminate fatally, it becomes an obligation to treat all of of them with the same vigilance accorded the known eclamptic.

Following the report of Schwarz and Dieckmann in 1929 it has been emphasized repeatedly from the Washington University clinic that there is a wide variation in the degree of severity among eclamptic patients. Also it has been emphasized that the milder cases, as a group, respond best to conservative treatment (no obstetric interference) whereas the severe cases, as a group, respond best to active treatment in which, at the proper point and in the proper manner, delivery is included. Based on this belief, the following outline of management of eclampsia has been presented to students in Washington University for some years past and is herewith recommended to those doing obstetrics, both in general practice and as a specialty. I feel that it represents as rational a therapeutic approach as it is possible to make in the present incomplete status of knowledge of a disease the etiology of which still remains a mystery. For the sake of brevity an outline form is used.

A. CONSERVATIVE MANAGEMENT

1. *Sedation.*—$MgSO_4$, 25 per cent, 10 cc., is given intramuscularly (gluteus) when convulsions are imminent or immediately after the first convulsion. Repeat in 5 cc. amounts after each succeeding convulsion until controlled. Not more than a total of 10 gms. of $MgSO_4$ should be injected in any twenty-four hour period. If the patient lies quietly in coma without convulsions, no $MgSO_4$ is given as it is considered simply a sedative.

2. *Elimination.*—Soap suds or warm tap water enema is continued until the return is clear. Gastric lavage, using normal saline or a weak sodium bicarbonate solution, is performed until the return is clear. Before removing the stomach tube, introduce 60 cc. of 50 per cent $MgSO_4$ solution into the stomach. Retention catheter is used for accurate determination of urinary output.

3. *Hydration.*—From 800 to 1,000 cc. of 20 per cent dextrose is given intravenously in from forty to sixty minutes twice or three times daily, depending on the response of the patient. Heart and lungs are to be checked before these large amounts of intravenous solution are given. The urine volume recovered for the first four hours following the injection of the dextrose solution should equal at least 60 per cent of the latter. Higher concentrations of dextrose (30 or 50 per cent) may be necessary if diuresis is not satisfactory. This is particularly true if much edema is present. Usually from 300 to 400 cc. of the 30 per cent or from 100 to 200 cc. of the 50 per cent dextrose is given at one injection. The judicious use of varying concentrations of hypertonic dextrose solutions represents the most important and effective single therapeutic step known today in the treatment of eclampsia. For example, proper hypertonic dextrose administration logically can be expected to affect favorably the coma, convulsions, hypertension, cerebral edema, general edema, oliguria, anuria, fever, tachycardia and, in addition, protect a damaged liver and prevent further mobilization of glycogen from the liver at a time when it is sorely needed by that organ itself.

4. *Nutrition.*—Usually after twenty-four hours the patient will tolerate food and is given a diet consisting of fruits and fruit juices. If the patient is comatose or unable to take food of her own volition it is considered safer to inject no food or fluid into the stomach because of the danger of aspiration should vomiting occur.

5. *Vaginal Instillation.*—Recently prepared 1 per cent neutral acriflavine in glycerin, 8 cc., should be given twice daily. This is done in anticipation of any subsequently indicated vaginal manipulation.

To this point the treatment is entirely conservative with sedation, elimination and blood hydration being stressed. What the management will be beyond this point is entirely dependent on the response to these measures. Usually from twelve to twenty-four hours is sufficient time to show whether the case can continue on a conservative regime with reasonable hope for a favorable outcome or whether active intervention will be necessary. If there is no improvement or if the condition grows worse, then the patient must be considered a severe case and active obstetric interference is indicated.

B. ACTIVE MANAGEMENT (DELIVERY OF THE PATIENT)

1. *Examination.*—Determine various factors pertinent to actual delivery; e.g., condition and parity of the mother, size of pelvis, size of baby, presence or absence of labor, and especially, the condition of the cervix.

2. *Delivery.*—(a) Patient in labor, general condition fair, cervix short and dilating. (1) Rupture of membranes. (2) Insertion of bag. (3) Oxytocic. (4) Forceps. (b) Patient not in labor, cervix firm, closed. (1) Abdominal cesarean section under local anesthesia.

Postpartum Care.—Continue intravenous dextrose to keep up satisfactory urinary output. Continue elimination from bowels.

If dextrose, even in from 30 per cent to 50 per cent concentration, fails to produce diuresis, consider phlebotomy, 500 to 600 cc.; but if done, a donor should be ready or the blood should be withdrawn aseptically and kept for possible reinjection into the patient at a later date.

In general, no saline, Ringer's or bicarbonate solutions are to be given. Give 50 per cent $MgSO_4$, 90 cc., as a rectal tap every six to eight hours, as may be required, to decrease intracranial pressure if headache, convulsions or coma develop. If patient is restless, sodium phenobarbital or sodium amytal by hypodermic injection or intravenously are preferred to morphine. Avoid sedatives, if possible, as they may mask coma.

If acidosis develops, treat with sodium lactate solution; one part of a molecular solution of sodium lactate diluted with an equal or greater volume of 20 per cent dextrose solution or distilled water (not Ringer's or saline solutions for eclamptic patients) may be given intravenously in from 300 to 600 cc. amounts.

If alkalosis develops, treat with dilute HCl, from 1 to 5 cc. of dilute HCl given in a small amount of milk or fruit juice every four hours. As an emergency treatment of alkalosis, calcium chloride may be given intravenously (25 mg. per kilo of body weight or 0.5 cc. of a 5 per cent solution per kilo of body weight). Do not give calcium chloride subcutaneously because of possibility of slough.

In either acidosis or alkalosis therapy the safest way to check the results of the therapy is to make repeated CO_2 and pH determinations on the blood

In the actual day to day management of cases of severe precclampsia and eclampsia one is too often unpleasantly and abruptly brought to face the realization that knowledge of this dread disease is far too limited for comfort. Anything that can be accomplished in the way of prevention is much more desirable than to try to combat the condition once it has set in. For this reason no discourse on the treatment of eclampsia is quite complete until a word has been spoken on the value of adequate prenatal care in its relationship to the prevention of eclampsia. I am convinced from mortality figures in eclampsia at the St. Louis Maternity Hospital that while good prenatal care will not eliminate this disease, it definitely will reduce its incidence and when it does occur among patients who have had good prenatal care it is appreciably less severe than when it occurs among those who have had no prenatal care.

For those who are particularly interested in this subject, be they medical students, research investigators, general practitioners or specialists in obstetrics, attention is called to the recent monograph by Dr. William J. Dieckmann entitled "The Toxemias of Pregnancy" (St. Louis, Mosby, 1941). This work represents a most valuable critical compilation of medical advances in knowledge relative to the physiology of the pregnant state through the last one and one half decades. Its worth is enormously enhanced by the rich personal experience and accomplishment of the author in this special field of obstetrics.

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THE USE OF INTRAVENOUS DIAL URETHANE IN OBSTETRICS

AN ANALYSIS OF 2,000 CASES

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The application of barbiturate drugs as obstetric analgesics has increased greatly during the last five years and, by oral or rectal administration, the results have been generally efficacious. In this study dial urethane (Ciba) was employed intravenously as an analgesic in labor.

Dial (diallyl-malonyl) is obtained from veronal through replacement of the ethyl radicals of the latter by an equal number of allyl radicals. The resultant compound is practically insoluble in water but when combined with urethane, a stable solution is formed. Urethane (ethyl carbamate) frequently is used as an analgesic in laboratory animals, but in man it has only a slight hypnotic action. It is excreted from the body as urea. Dial urethane (Ciba) is marketed in ampules of 2.3 cc. volume, each cubic centimeter containing dial 1½ gr. and urethane 6 gr.

The earlier investigation of this drug was begun at The Willows Hospital, a seclusion maternity institution for unmarried women. In a series of 1,200 patients, dial was found to be an efficient analgesic and the results of this study were published in THE JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION in March 1938. The present report consists of 2,000 cases from hospital and institutional practice. Of this group there were 1,458 primiparae and 542 multiparae.

The drug was injected during the first stage of labor at which time the cervix was approximately 2 centimeters dilated, accompanied by regular, strong pains. The total intravenous medication was dial urethane 4 cc. (dial gr. 6, urethane gr. 24) given over a period of ten minutes. One half hour following this procedure the patient received morphine sulphate gr. ⅛ hypodermically. Ether in small amounts was inhaled as the head passed through the vulval ring.

During the injection of dial the blood pressure undergoes a moderately rapid fall. The lowest point in this decline occurs at the end of fifteen minutes after which time the pressure gradually returns to normal. Simultaneously, the pulse and respiration are accelerated, their return to normal closely paralleling that of the blood pressure.

When the dial is injected rapidly the patient will complain of dizziness and diplopia, hence the rate of 1 cubic centimeter per minute should not be exceeded. Should the solution escape into the subcutaneous tissue or venous sheath, pain is immediately noted, induration supervenes and thrombosis may occur in the vein. In this study sloughs and thrombosis were not observed.

The degree of analgesia and amnesia exhibited by the patients following the medication was determined by their reactions to external stimuli, e.g., spoken word, pin prick and their reaction to further uterine pains.

During an eight hour period all the patients obtained some relief from pain. In the entire group only ten were excited following the injection and this condition did not last for more than one hour. The most usual reaction was that the patient became drowsy before the injection was completed and this lethargy gradually deepened until she slept soundly between pains, awakening only with the acme of the uterine contraction. The detailed results of the analgesia are given in table 1.

The presentation and position of the fetus were recorded at the onset of labor by external palpation combined with rectal examination and, when possible, these data were checked by vaginal palpation of the sutures at the time of delivery. These determinations are given in table 2.

Table 1. *Reaction to Intravenous Dial*

Reaction	¼ hr.	½ hr.	4 hrs.	8 hrs.
Drowsy	1,990			
Sleep		1,981	1,989	
Moderate sleep		5	6	
Light sleep		6	5	95
Excitation	10	8		
Analgesia and amnesia				1,905

Table 2. *Fetal Presentation and Status of Membranes*

Position of Fetus		Primiparae	Multiparae
O.L.T.		959	344
O.D.T.		200	72
O.L.P.		150	68
O.D.P.		95	34
Breech		44	20
Twins		10	4
	Membrane L.	1222	238
	R.	236	254

The effect of intravenous dial is to prolong the uterine contractions which are followed by a longer rest phase. This action was shown by kymographic studies in the earlier investigation.

These observations would tend to explain the decrease in the total time of labor and rapidity of cervical dilatation which have been noted by others.

The average duration of labor for multiparae and primiparae is twelve and one half and eighteen hours, respectively. In this study the average duration was sixteen hours for primiparae and eleven hours for multiparae. A more detailed comparison is shown in table 3.

Table 3. *Duration of Labor*

		1st Stage	2nd Stage	3rd Stage
DeLee	P. 18 hrs.			
Average	M. 12¼ hrs.			
Primiparae		16 hrs.	1¾-3	¼ hr. plus
Multiparae		17 hrs.	¼-½	¼ hr. plus
Williams	P. 18 hrs.			
Average	M. 12¼ hrs.			
Primiparae		16 hrs.	1¾-2	¼ hr.
Multiparae		11 hrs.	1 hr.	¼ hr.
Dial	P. 16 hrs.			
Average	M. 11 hrs.			
Primiparae		14¼ hrs.	2 hrs.	¼ hr.
Multiparae		9¾ hrs.	1 hr.	¼ hr.

Labor terminated normally in 1,292 patients while some type of operative aid was instituted in 708. Mediolateral episiotomy was performed 600 times and, although it is considered as a routine procedure by many obstetricians, in this series it is placed under operative measures for comparison. There were no stillborn infants. Resuscitation was necessary on thirty-nine babies, the operative indications being prolapsed cord and version extraction. Manual removal of the placenta occurred twenty-four times and a history of infected abortion or edometritis was obtained from ten patients of this group.

Inspection of puerperal cervix was a routine procedure and cervical lacerations were found in thirty-two patients. These injuries were most frequent in those patients requiring operative aid. Superficial perineal injuries of first degree occurred 432 times.

The absence of narcosis in the babies was attributed to dial morphine being given early in labor so that the maximum fetal concentration of the barbiturate occurs within five hours of the time of injection. Again, placental permeability to dial is about midway in the barbiturate group.

Table 4. *Termination of Labor*

Labor Term	Primiparae	Multiparae	Labor Term	Primiparae	Multiparae
Normal	950	342	Hemorrhage postpartum	20	8
Operative	508	200	Babies resuscitated	25	14
Episiotomy	508	92	Cervix lac. total	22	11
Low forceps	304	176	Unilat.	16	11
Mid forceps	125	12	Bilat.	6	0
Ver. extr.	19	5	Vaginal lac. total	250	102
Prol. cord	10	2	Deep:		
Manl. aid breech	35	5	Extension of episiotomy	50	8
Bag induc.	15	9	Superficial	432	94
Placenta manl. remov.	19	5			

Intravenous dial has been used in 100 cases of cesarean section. When the operation is one of election the patient has been given two capsules of nembutal the night before, and two capsules of nembutal two hours preceding operation, and ¼ gr. morphine one half hour preceding the operation and 4 cc. intravenous dial was given just before the abdominal preparation was begun. By the time the patient was placed in the operating room she was in a state of amnesia and the anesthetic used was 1 per cent novocain infiltration. The low cervical operation or laparotrachelotomy of DeLee was performed on all patients. The operative time was about an hour during which the patients were completely relaxed. Postoperative recovery was uneventful.

The babies were full term and all breathed within a few minutes after birth.

SUMMARY

1. Dial urethane, 4 cc., was employed intravenously in 1,200 full term patients in active labor. Morphine sulphate, gr. ⅛, was used hypodermically one half hour after the intravenous injection.

2. The above medication was given when the cervix was 2 centimeters dilated.

3. No accidents of intravenous technic occurred.

4. Excitation was noted in ten patients; however, all experienced amnesia and analgesia of definite degree and duration.

5. In this group a decrease in duration of labor was noted in primiparae and multiparae.

6. Normal termination of labor occurred in 1,292; operative measures were used on 708 patients.

CONCLUSIONS

The combination of intravenous dial and morphine subcutaneously is a safe and effective analgesic when given in the first stage of labor. Narcosis of the baby does not occur. When this technic is followed, morphine acts as a synergist prolonging the action of dial.

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POSTPARTUM GENITO-URINARY INFECTIONS

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Postpartum genito-urinary infection is a factor in the maternal welfare problem. It is impossible to ascertain the actual number of immediate deaths from pyelitis complicating pregnancy. Reinberger and Anderson[1] report 360 cases of pyelitis in 18,000 deliveries with five deaths. Time only will tell how much permanent damage has been done in the way of pyelonephritis, hydronephrosis, acute and chronic nephritis, stone formation and other pathologic conditions.

Genito-urinary infection is one of the most common causes of pueperal pyrexia. The morbidity encountered on the obstetric service of Dr. Joseph D. James and myself created the incentive to write this paper.

After reviewing the charts of 250 consecutive deliveries in 1940 several points were brought to light which might lessen the incidence of genito-urinary infection. With these in mind, during 1941 an effort was made to reduced the incidence of postpartum genito-urinary infection in a like number of 250 consecutive deliveries. It is a study of these 500 consecutive private cases, delivered in the same hospital and with the same laboratory reporting all urine findings from which this report is made.

It is difficult to determine in many cases just what part or how much of the genito-urinary tract is infected. No attempt will be made in this report to differentiate pyelitis from lower urinary tract infection. The term "genito-urinary infection" is used to designate the presence of from two to four plus bacteria and clumping of pus cells in the urine, a finding which usually was associated with clinical urinary tract infection.

Harrison and Herrmann[2] found clumping of pus cells in 14.7 per cent of antepartum and 19.3 per cent of postpartum urine specimens. Considerable bacteria was found in 43.4 per cent of antepartum and 42.7 per cent of postpartum specimens. Only 27 per cent of the antepartum and 24 per cent of the postpartum patients with a marked pyuria failed to develop clinical evidence of pyelitis. The incidence of postpartum pyelitis as reported varies

from 1.5 per cent by Eastman[3] to 25 per cent by Douglas and Laughlin.[4]

In the first 250 cases there were forty-two cases of genito-urinary infection, or an incidence of 16.8 per cent. Urinary infection was present in eleven of these at delivery, in twenty-one by the sixth postpartum day and in ten after the ninth postpartum day. Of the twenty-one cases with normal urine at delivery that developed infected urine by the sixth postpartum day, fourteen had an atonic bladder with retention requiring repeated catheterization for thirty hours or longer. Of the patients having authentic histories of past genito-urinary infection, 20 per cent developed symptoms during the prenatal period and 32 per cent during the postnatal period. Treatment was not instituted for any patient in this group until clinical symtpoms appeared. Clinical symptoms consisted of dysuria and frequency or kidney tenderness and fever. Thirty of this group did require medication.

The presence of infected urine and clumping of pus cells in these cases was probably the result of, first, the continuation of a pyelitis of pregnancy; second, the exacerbation of a chronic pyelitis, or, third, too frequent or improper technic of catheterization before delivery or after delivery, particularly if an atonic bladder with retention existed.

The second series of cases showed a reduction in the incidence of genito-urinary infection from forty-two cases, or 16.8 per cent, to nineteen cases or 7.6 per cent in an equal series of 250 cases. Eleven cases in the first series had infected urine at delivery and six cases in the second series. This reduction can be attributed to a more careful past genito-urinary history and a more thorough questioning of patients as to genito-urinary symptoms during the prenatal period. Patients with a past history or symptoms of genito-urinary infection should be observed more closely than those without such a history.

The appearance of unusual cloudiness in any prenatal urine specimen, when the fluid intake had been maintained, was considered indicative of obstruction and probable pyuria. When specimens of this kind were encountered during routine urine analysis, and the presence of pus and bacteria verified by the microscope, a "clean voided" specimen was obtained and examined. A "clean voided" specimen was obtained by preparing the patient as though for catheterization and the patient asked to void in a suitable container. If a sufficient number of bacteria or pus cells were found a catheterized specimen was obtained. This eliminated many catheterizations and the possibility of carrying infection into the bladder.

There is a wide diversity of opinion regarding the proper management of the urinary bladder during labor, at delivery and during the puerperium. According to one school of thought catheterization is always contraindicated; according to another, frequent catheterization is harmless.

A compromise between these two schools would be a more applicable one; namely, avoid all unnecessary catheterization and improve the technic of catheterization when it is necessary. The urethral orifice should be cleansed carefully to prevent carrying infection into the bladder with the catheter. A medium-sized catheter of good grade rubber should be used. Cheap catheters are frequently rough and will traumatize the urethra, as will one that is too large. Urethral trauma will invite infection if repeated catheterization is done. Sterile tincture of green soap is a good lubricant to use. The first ounce of urine should be discarded so that any catheter contamination from the urethra will be washed out.

The admission hospital specimen should be a voided one. During labor all efforts and encouragement should be given a patient to void instead of a routine catheterization ordered. During a long labor, if the patient is unable to void and the bladder becomes overdistended or becomes an obstruction to the descending head, catheterization should be done. Patients too drowsy from analgesics to void voluntarily may be allowed to awaken enough to micturate before additional analgesia is given. It is agreed generally that the patient should be catheterized upon the delivery table after she has been prepared for delivery. This urine should have a complete microscopic and chemical examination. This will denote the patient with urinary tract infection that was not detected during the prenatal period or the one that has only partially responded to treatment. Treatment of pyelitis during pregnancy frequently alleviates the symptoms, but a "silent" infection of the genito-urinary tract remains to flare up during the postpartum period. The treatment of pyuria, if indicated by the delivery room specimen, will reduce markedly the incidence of postpartum urinary infections.

Another factor in the production of genito-urinary infection in the first series of cases was bladder atony. The term "postpartum atony of the bladder" will be used in this paper to refer to the patient unable to void thirty hours after delivery, or the patient voiding frequent small amounts, leaving a large bladder residual. Twenty cases in the first series had postpartum atony of the bladder and fourteen or 70 per cent developed clinical genito-urinary infection within six days. The presence of the usual physiologic stasis in the genito-urinary tract, trauma to the bladder by the presenting part during pregnancy and delivery and repeated catheterization for overdistention of residual urine which favors infection, are all probably factors in these cases.

Dilitation, tortuosity and displacement of the ureters above the pelvic brim, together with dilitation of the kidney pelvis and calices, are normally present during pregnancy and begin about the twelfth week. Atony of the genito-urinary tract increases up to the last month of pregnancy, then decreases slightly until after delivery. After delivery atony again increases for a few days and then rap-

idly returns to normal. This is a factor in the production of primary postpartum urinary infection.

Several etiologic factors have been suggested as a cause of this physiologic stasis: (1) altered function of the endocrine glands or the sympathetic nervous system; (2) mechanical filling of the bony pelvis and abdomen by the uterus with pressure on the ureters at the pelvic brim.

Toward the end of pregnancy the presenting part impairs the blood and lymph drainage of the base of the bladder so that this area is often edematous, easily traumatized and more susceptible to infection. In multiparae with relaxed vaginal walls and cystocele, residual urine is a frequent occurrence.

Rose and Rollins[5] state that postpartum bladder atony is due to pressure of the child's head on the pudendal nerve during a prolonged second stage or to reflex from trauma of the outlet. The pudic nerve innervates the external or voluntary bladder sphincter and transmits the sensation of a desire to void. In delivery the pudic nerve offers two places of compression with resulting physiologic nerve block, one on the inner surface of the ramus of the ischium and the other on the inferior surface of the symphysis pubis. When such a block occurs the external sphincter becomes a passive obstacle to the expulsion force of the bladder wall. Such a block allows the bladder to fill without sensation. If this blocking process is incomplete the bladder may empty down to a quantity that is unrecognized by the pudendal nerve and eventually this residual urine will lead to increased stages of decompensation of the bladder wall and larger amounts of residual urine.

Baird[6] thinks the inability to pass urine in the early stages of the puerperium causes distension of the bladder which may still be sufficiently active to cause a reflux into the ureter with a loss of tone and, if the urine is infected, produce an ascending infection.

McLane[7] is of the opinion that infection is carried from the bladder up the lymphatics of the ureter and para-ureteral tissue to the kidney pelvis to produce a pyelitis and is not an ascending infection against the current of urine.

Tandall and Murray[8] found urinary retention in 21 per cent of their postpartum cases and advise repeated catheterization until residual urine is not found and claim to have avoided all postpartum genito-urinary complications in 3,500 cases.

Urinary retention was more frequent than this in our cases and repeated catheterization increased the incidence of urinary infection. In sixty-six cases of the first series each patient was catheterized twice daily immediately after voiding for the first three postpartum days to determine the amount of residual urine present and forty, or 61 per cent, had a residual on one or more occasions of over 100 cc.

There was also a definite increase in bacteria found in the urine and urinary symptoms following this routine catheterization in patients who previously had normal urine. Catheterization did not materially affect the clinical incidence of genito-urinary infection if a large residual and atony did not exist. This, with the fact that bacterial contamination existed following repeated catheterization, makes it potentially a dangerous procedure, particularly in bladder atony, and should be avoided whenever possible.

In the second series of cases twelve cases of atony occurred compared to twenty in the first and four developed clinical symptoms of genito-urinary infection compared to fourteen in the first group. The reduction of infection accompanying bladder atony was due to a determined effort to make all patients void. Nurses were instructed to try every "trick of the trade" such as pouring hot and cold water over the labia, running water, pouring water from one container to another by the bedside, placing steaming hot water in the bed pan, ice to the rectum or any other scheme that might assist the patient to void; however, these were not persisted in to the point of exhausting the patient. Some patients will void if allowed to sit upright on the bed pan. Infection must be introduced into a bladder containing normal urine and cultured there before infection results, and catheterization is a good way to do this.

Catheterization should be done if the patient is unable to void and the bladder is uncomfortable or distended regardless of any set time after delivery. Distention produces mucosal trauma and stasis. Repeated catheterization is a comparatively safe procedure, if properly done, in patients with a normal delivery urine, for two or three days. If unable to void after from forty-eight to seventy-two hours continuous drainage by retention catheter is instituted and the bladder irrigated alternately every eight hours with 1:5000 potassium permanganate and 1:5000 silver nitrate solution. If the urinary tract is infected, continuous drainage with irrigation, as mentioned, is used after the second catheterization. Drainage is as important in these cases as in any infection, and with irrigation, stasis is relieved, mucosal trauma cleansed, bladder tone stimulated and pressure offered to the upper urinary tract removed. Test the capacity of the bladder at each irrigation to the point of discomfort. This gives some idea of bladder tone and the ability of the patient to void.

Pituitrin, pitressin, morphine, prostigmin methylsulphate and mecholyl were all tried repeatedly in an effort to stimulate bladder tone without success.

A catheterized urine specimen on the sixth postpartum day will indicate patients with pyuria who may later develop a delayed or primary postpartum genito-urinary infection as a result of trauma to the bladder, stasis and catheter infection. Treatment should be started immediately when pyuria is found either in the delivery room specimen or the sixth day specimen. It is essential to recall the established methods of treatment used with fair success before the introduction of the sulfonamide

compounds. Therapy with mandelic acid still occupies a highly respected place in treatment. Mandelic acid is most effective against gram-negative bacilli in urine with a pH below 5.5. Ammonium chloride and fluid restriction may be necessary to obtain the proper pH. Simple procedures such as forcing of fluids and changing the reaction of the urine should always receive consideration.

Certain principles underlying therapy of urinary tract infection must be borne in mind when using sulfonamide compounds. Since all these compounds are excreted in the urine, the renal function should be known. The drugs should be administered cautiously to patients with reduced renal function as blood and tissue concentrations may become unduly high. Blood concentration levels are helpful. More satisfactory clinical results will be obtained when there is no obstruction to the flow of urine. Failure to sterilize the urine is often associated with stasis. Fluid intake should be maintained at a normal level. Usually it is not necessary to give doses as large as those needed for systemic or blood stream infections. The addition of alkaline therapy probably offers no advantages, but this point is controversial. Blood counts should be done frequently during sulfonamide therapy. If marked anemia is present, blood transfusion should be done.

Sulfathiazole has proved to be the most useful compound of this group in the therapy of urinary infections. It has been found to exercise a bacteriostatic action on hemolytic and nonhemolytic streptococci, staphylococcus aureus and albus, streptococcus viridans and fecalis and the coliform group.

Pudenal nerve block is another factor to consider in bladder atony. The principal factor in pudendal nerve block is probably the length of time the head is on the perineum rather than the length of labor or the type of delivery. Forcep delivery and episiotomy no doubt lessen the possibility of retention by shortening the time the head is on the perineum and making pressure on the bladder and urethra.

Baird[6] found infected urine five times as frequently in complicated deliveries as in spontaneous deliveries. In our cases the incidence of genito-urinary infection was not altered particularly by the type of delivery unless undue trauma occurred to the bladder. The length of labor was also irrelevant, probably due to the fact that many outlet forcep deliveries and episiotomies were done in primiparae. However, the relative shape and size of the fetal head to that of the pelvic outlet is undoubtedly a factor.

Analgesia and anesthesia probably play little, if any, part in producing atony of the bladder as some cases of bladder atony will last from 7 to 14 days and predelivery or delivery medication is excreted long before this time.

Butler[9] found 90 per cent of urinary infection due to B. coli and thinks the proximity of the colon and its lymphatics to the renal pelvis, and in addition the frequent association of chronic appendicitis, constipation and chronic gallbladder disease with pyelitis, leads one to believe that infection is carried by lymph channels from the gastrointestinal tract.

In our series there were thirty cases of obstinate constipation during pregnancy and three had postpartum pyelitis. Two of the three had pyelitis before their pregnancy; one developed pyelitis for the first time during the postpartum period. There were eight cases of definite gallbladder disease and four with acute appendicitis and none developed urinary infections.

Theoretically, primary postpartum genito-urinary infection can be eliminated from obstetrics by the proper handling of the bladder after delivery, but that goal has never been achieved. Large atonic overdistensions continue to escape detection. Atonic overdistension may be present even if the patient is voiding. A patient voiding from 50 to 250 cc. urine every hour or two probably has a residual urine and should be catheterized. Voiding of occasional separate large amounts, from 700 cc. up, suggests decompensation with increased residual urine. However, if more attention is directed to the genito-urinary tract during pregnancy and the postpartum period, the incidence of genito-urinary infections can be reduced.

CONCLUSIONS

1. Be on the alert for evidence of genito-urinary infection during the prenatal period and observe more closely patients with a past history of genito-urinary infection.

2. Catheterization should be avoided when possible.

3. Examine routinely two specimens during the lying-in period and others as indicated.

4. A delivery room specimen will assist in detecting "silent" urinary infections that are a result of an excacerbation of an old pyelitis or continuation of a pyelitis of pregnancy.

5. The second specimen catheterized on the sixth postpartum day will indicate many patients who may later develop clinical symptoms as a result of stasis, trauma and catheter infection during the postpartum period.

6. Remember that the genito-urinary system and the reproductive system are closely associated.

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ERYTHROBLASTOSIS FETALIS IN DIZYGOTIC TWINS

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The recent advances in knowledge of the pathogenesis of erythroblastosis fetalis and the small number of cases reported in double ovum pregnancy make it seem worth while to present a case report of erythroblastosis fetalis in dizygotic twins.

CASE REPORT

M. T., white female, aged 31, gravida 8, para 5, 2 abortions with three living children, entered the hospital November 29, 1941 in active labor. Her pregnancy had been followed by a cooperating prenatal clinic since July 29, 1941. Her last menstrual period had been on March 25, 1941, with the expected date of confinement January 1, 1942. The pelvis was normal. Blood pressure was 120/80. Hb. 70 per cent, red blood cells 3,250,000, white blood cells 9,000. Urine was normal. Blood Wassermann and Kahn tests were negative. Roentgen ray of the abdomen revealed a twin pregnancy. The prenatal course was uneventful except for a short period of slight dependent edema.

Past Obstetric History.—In 1930 the patient delivered spontaneously a full term 7 pound 8 ounce male infant who is now living and well. In 1933 a double ovum twin pregnancy was delivered spontaneously. The first child, a male, weighing 5 pounds 8 ounces is now living and well. The second child, a female, weighing 5 pounds, died two hours after birth. No autopsy was performed and no laboratory work was done but the attending physician told the parents that the second child was anemic. In 1935 she delivered a 7 pound 4 ounce stillborn female. Autopsy revealed petechial hemorrhages of the pleura and epicardium, visceral congestion and extensive postmortem autolysis. Microscopic section of the lungs revealed hemorrhage and atelectasis. The liver showed numerous erythropoietic centers. Erythroblastosis was suspected but could not be determined definitely because of postmortem changes. The placenta was not examined microscopically. In 1937 a 3 months spontaneous abortion occurred. In 1938 she delivered a 7 pound male infant who is alive and well. In 1939 she delivered a 10 inch macerated male fetus weighing 1 pound. With this pregnancy she was diagnosed as having preeclampsia and death of the fetus occurred about one month before delivery. Following delivery she was in severe shock but responded well to treatment. On the third postpartum day a citrated whole blood transfusion, using the husband as the donor, was attempted. After the first few cubic centimeters of blood were given she developed chills, urticarial and purpuric lesions and signs of shock. She responded satisfactorily to emergency treatment; no other transfusions were attempted. A recheck of the blood types and compatibility revealed type IV for her blood and her husband's blood and no clumping occurred in the repeated cross match. In 1940 she had an eight weeks incomplete abortion which was later followed by dilatation and curettage.

Physical Examination.—Temperature was 98.6, pulse 88, respiration 20, blood pressure 118/88. Examination findings were essentially normal except for slight ankle edema. Abdominal examination revealed a twin pregnancy with fetal heart rates of 130 and 142 respectively. There was 1 cm. dilatation of the cervix. The membranes had ruptured fourteen hours before admission. Hb. was 68 per cent, red blood count 3,900,000, white blood count 12,000. Urine, blood chemistry and serology were normal.

The course of labor was rapid and uneventful and five and one half hours after admission the patient delivered a 4 pound 10 ounce stillborn female. This fetus showed universal hydrops. Fifteen minutes later a 3 pound 3 ounce male was delivered by breech extraction. The third stage of labor lasted fifteen minutes and was uneventful..

Progress of Second Baby.—At the time of delivery the second twin appeared in good condition. Temperature was 97.4 degrees, respiration regular, color good. The infant was given routine care for the premature including 8 cc. of whole blood intramuscularly. Fourteen hours after delivery mother's milk feeding by gavage was started.

Laboratory Findings.—Hb. was 61 per cent; red blood count 2,100,000; white blood count 8,850; differential count, polymorphonuclear 58 per cent, (filament 28, nonfilament 30), lymphocytes 33 per cent, myelocytes 2 per cent, metamyelocytes 3 per cent, immature lymphocytes 2 per cent, stem cells 2 per cent with 144 nucleated red blood cells observed while counting 100 white blood cells. Anisocytosis and polychromatophilia were present. Reticulocyte count was 28.2 per cent. Clotting time was 3 minutes (Sabrazes), bleeding time 3½ minutes (Duke's), prothrombin time 20 seconds (Kato micromethod).

Forty-five hours after delivery the child showed a trace of icterus which deepened rapidly. Another 10 cc. of blood was given intramuscularly along with vitamin K. Respiration became irregular and a frothy, bloody drainage exuded from the nose and mouth. The infant rapidly became more icteric, respiration became irregular and shallow and death occurred sixty hours after delivery. Laboratory work was repeated but showed no appreciable deviation from the previous findings. Blood from the infant, the mother and the father were sent to two reliable sources for study in regard to the Rh factor. The reports were as follows: Father's blood Rh^+, mother's blood Rh^-, infant's blood Rh^+ with both guinea pig immune serum and human serum. One study showed no Rh isoagglutinins in the serum of the mother while another study showed isoagglutinins in fairly strong titer.

Pathology of Placenta.—Both of the placentas were submitted for study. One measured 18 cm. by 16 cm. by 6 cm. and weighed 770 grams, and the other measured 15 cm. by 10 cm. by 3 cm. and weighed 470 grams. The larger placenta was increased in size, edematous and showed large pale grayish cotyledons which were quite friable. The maternal surface was smooth and the cotyledons were intact. On cut section the surface had a reddish gray color and presented a honeycombed appearance. The smaller placenta presented a similar picture although smaller in size.

Microscopic examination revealed a normal decidual plate. The villi were enlarged; there was persistence of the Langhans layer of cells; the stroma of the villi was quite edematous and numerous Hofbauer cells with

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foamy cytoplasm were noted. Marked intercapillary erythropoiesis was present.

Diagnosis.—Erythroblastic placenta.

Autopsy of First Child.—The body was that of an immature white female, measuring 35.2 cm. in length and weighing 2,100 grams. There was loss of epidermis in many areas over the body. The skin had a brownish pink discoloration; a caput was present over the occiput. There was extensive edema of the subcutaneous tissues of the entire body which pitted on pressure. On opening the body and excising into the skin over the extremities and abdomen, edema fluid escaped from the line of incision in increased quantity. The abdomen contained 500 cc. of a straw colored fluid; each pleural cavity 100 cc., and the pericardial sac 50 cc. The pleural and peritoneal surfaces were smooth. The thymus showed petechial hemorrhages on the surface and throughout the thymic tissue. The heart was enlarged, weighed 10 grams, and was flabby in consistency; no petechiae were noted. The foramen ovale was patent. The lungs had no crepitation and were atelectatic on section. The liver weighed 170 grams, the capsule was smooth, the cut surface had a uniform yellowish color. The spleen weighed 25 grams, the capsule was smooth and the organ was reddish in color. On cut section marked congestion was noted with the Malpighian corpuscles indistinct. The pancreas and adrenals were normal. The kidneys showed a fetal type of lobulation but were otherwise normal. The ureters and bladder showed no change. The intestinal tract was normal. The head was opened and no hemorrhages were seen and the brain substance, although soft and mushy, showed nothing of further note. The genital organs were infantile but appeared normal. The long bones were normal grossly.

Microscopically the vessels of the heart were dilated and congested and contained many nucleated red blood cells. Foci of erythropoiesis were noted within the heart muscle and were also noted in most of the other organs including the heart, liver, spleen, adrenals and kidneys. There was extensive postmortem degeneration in all organs. The cytoplasm of the heart muscle was pale and degenerated. The lungs were atelectatic. Besides the hemopoietic centers in the liver there was extreme degeneration of the liver cells showing a faint cellular outline, pale cytoplasm and containing a brownish pigment. The sinusoids of the spleen were congested. Only postmortem degenerative changes were noted in the pancreas, adrenals and kidneys. There was an area of hemorrhage in the uterine wall but otherwise the uterus, tubes and ovaries showed no change. Extensive hemorrhage was noted in the skin tissue which was taken from the caput over the occiput of the scalp. The bone marrow was rather hyperplastic. The gastrointestinal tract was normal. Blood smears were taken at postmortem. The red blood cells showed polychromatophilia, anisocytosis and poikilocytosis. Many red cells were enlarged. At least 33 per cent of the red cells were nucleated.

Diagnosis.—Erythroblastosis fetalis (hydrops fetalis).

Autopsy of Second Child.—The body was that of a premature male infant measuring 35 cm. in length and weighing 1,340 grams. The skin was uniformly icteric and showed petechial and ecchymotic hemorrhagic areas of the face and upper and lower extremities. The head was of normal size and shape; the suture lines were open. The sclerae were icteric. Crusted blood was present in the mouth. No glandular adenopathy was present in the neck. The chest was normal; the abdomen slightly distended. On opening the abdominal cavity, 10 cc. of a dark yellowish fluid was found. The liver extended 2 cm. below the costal margin in the right midclavicular line; the spleen was 1 cm. below the costal margin in the left midclavicular line. The peritoneal surfaces were smooth; they had an icteric tinge and the organs were in normal relationship to one another. On opening the thoracic cavity the pleural surfaces were icteric; the organs were in normal relationship to one another and a normal amount of fluid was present. The thymus was not enlarged. The heart was of normal size and shape. Over the pericardial surface many petechial hemorrhages were noted, especially about the coronary sulcus. The foramen ovale and the ductus arteriosis were patent. The lungs were congested and showed numerous petechial and ecchymotic hemorrhages over the pleural surface. On cut section through the lungs numerous hemorrhagic areas were noted throughout the parenchyma. Crepitation was absent. The liver weighed 120 grams; the capsule was smooth. The organ was purplish red in color and flabby in consistency. There was a slight icteric tinge along with extreme congestion on the cut section and several small, well circumscribed pale areas were noted. The spleen measured 5½ cm. by 3.8 cm. by 1.7 cm. The color was reddish purple and the capsule was smooth. On cut section extreme congestion was noted. The Malpighian corpuscles were not visualized. The adrenals and pancreas showed no change. The kidneys showed a fetal type of lobulation; the capsule was smooth and stripped easily. No petechial hemorrhages were noted over the surface. On cut section no changes were present. The ureters and bladder showed nothing of note. The urachus was patent. The gastrointestinal tract was normal. The head was opened in the usual manner and showed nothing of note.

Microscopically the blood vessels in all organs were dilated and congested and contained many immature red blood cells. In the heart, petechial hemorrhages were present beneath the epicardium. Many areas of interstitial hemorrhage were noted throughout the lungs. The sinusoids of the liver showed immature red blood cells. The liver cells were pale and contained a brown pigment; many hemopoietic centers were noted. The biliary canaliculi were filled with bile plugs. There was extensive congestion of the spleen. Hemopoietic centers were present in the adrenals and kidneys but no other changes were noted. The pancreas showed no change. Section through the ecchymotic areas of the skin showed interstitial hemorrhage with presence of blood pigment. The bone marrow was hyperplastic. The red cells in the blood smears taken at the time of autopsy showed polychromatophilia, aniscytosis, poikilocytosis and 180 nucleated red blood cells were counted with every 100 white blood cells. Postmortem blood culture was negative.

Diagnosis.—Erythroblastosis fetalis (icterus gravis neonatorum).

Clinical Manifestations.—The symptoms of icterus neonatorum, hydrops fetalis and congenital anemia exhibited in these two cases were at one time considered separate entities. That this triad is a manifestation of the same pathologic process or stimulus was first pointed out by Diamond, Blackfan and Baty[8] and is now generally accepted as a distinct syndrome exhibiting all or combinations of these three cardinal findings. The clinical manifestations[1,2,3,4,7,8,22,23,25] and their development will depend on whether the predominate pattern be evidenced by edema or icterus or simply by the blood findings of anemia and increased number of nucleated red blood cells. The hydrops, when associated with either of the other two, is fatal and the infant is either stillborn or dies immediately after birth. If the jaundice predominates, it may be present at birth or develop shortly thereafter. If present at birth, the vernix may be a golden yellow and the placenta and the amniotic fluid may have an icteric tint. Potter and Adair[24] point out that neither the anemia nor increased nucleated red

blood cells alone are sufficient for a diagnosis of erythroblastosis fetalis and many cases so diagnosed with subsequent recovery are probably erroneous.

The infant is often lethargic and exhausted although, early, may appear essentially normal. The symptoms may develop rapidly, depending on the rate of blood destruction. Petechial hemorrhages may appear. The heart is often enlarged, usually determined by roentgenogram. The pulse is rapid and weak. Fever usually is not present. The liver and spleen are enlarged in most cases. Due to deposition of blood pigment in localized areas of the brain (striato-pallidal) a syndrome called kernicterus may develop causing death in the first few days of life or symptoms may appear later. McKinley[20] states that the early signs of kernicterus are convulsions, neck retraction, respiratory paralysis and drowsiness. Later this nuclear jaundice results in spasticity and mental deficiency. McKinley[20] followed a series of cases of erythroblastosis fetalis, or more specifically the icterus gravis type, and feels that nuclear jaundice as a cause of late sequelae is overestimated.

Pathogenesis.—The literature on the pathogenesis has been reviewed adequately in the past decade. Darrow[6] in her excellent paper reviewed the numerous conceptions of pathogenesis in icterus gravis neonatorum and these in turn may be applied to the entire syndrome of erythroblastosis fetalis. This author separated the etiologic factors into those arising within the mother and those attributed solely to the fetus. She prefaced her discussion by stating that in a search for etiology one must take cognizance of familial incidence, the apparent good health of the parents and the usual absence of contributing factors in the prenatal course, the association of edema, anemia and icterus. Receiving blame from the maternal standpoint were nutritional disturbances, specific diseases of the mother and toxemias of pregnancy. Causes attributed directly to the fetus were extrahepatic or hepatic obstruction with resultant jaundice and liver damage; primary anlage defect of the hemopoietic system; metabolic disturbances of the hemopoietic apparatus; septicemic involvement of this system; hormonic restraint of hemolysis in the infant by the mother with the temporary deficit of this hormone in the newborn child, and, finally, that the erythroblastosis was a malignant manifestation similar to leukemia. In the final analysis adequate conclusive proof was lacking and the proposed theories remained hypothetical.

Investigators and students of this disease syndrome are now watching with interest the evolution of a new theory which has already given promise of solving the elusive etiologic mechanism in a large percentage of cases. Landsteiner and Wiener[12] injected the blood of the Macacus rhesus monkey into rabbits and developed an agglutinin. When this agglutinin was added to certain human red blood cells agglutination occurred. The substance present in the red blood cells (agglutinogen) which made possible this agglutination was called the Rh factor. It was this agglutinogen-agglutinin reaction which Levine,[13] Levine and Katzin,[15] Levine, Katzin and Burnham,[16] Levine, Katzin, Burnham and Vogel[14] and Burnham[15] reported to be the causative factor in erythroblastosis fetalis. The clue to this concept apparently was supplied by the observation that mothers of erythroblastic babies often suffered from intra-group transfusion reactions. In brief, the mechanism is as follows: Approximately 85 per cent of the general population has red blood cells containing the Rh factor or, in other words, are Rh+. Fifteen per cent do not have this factor and are Rh–. When an Rh+ male is mated with an Rh– female, the father (Rh+) transmits as a dominant Mendelian gene the Rh factor to the fetus. As a result, the Rh+ fetus causes the production of anti-Rh agglutinins in the maternal blood. These anti-Rh agglutinins are capable of penetrating the placental barrier and of causing destruction of the fetal red blood cells (agglutinogen-agglutinin reaction) thus establishing the blood picture of erythroblastosis fetalis. For this same reason, numerous cases of transfusion reactions in mothers delivering erythroblastic infants have occurred.[5,14] These reactions are thought to be due to the action of the maternal (or recipient) anti-Rh agglutinins destroying the Rh+ red blood cells of the donor (often the husband), hemolyzing the donor cells with a resultant transfusion reaction.

Many mothers who have delivered erythroblastic infants often give a history of repeated stillbirths or abortions. Levine and his colleagues[14] stress this point and offer evidence to verify it. These authors have not determined at what stage in pregnancy isoimmunization occurs but, if abortions are to be attributed to this process, it must occur early. The later it occurs in the pregnancy, the greater the chances of a full term fetus with manifestions of erythroblastosis. Since some infants develop symptoms of the disease within a period of hours or days after delivery, it is assumed that the infant tissues store the anti-agglutinin and subsequently release it to combine with the fetal red blood cells causing hemolysis.[14] Other authors[29] suggest direct liver damage with development of the icterus and erythroblastic blood picture from this cause.

The investigators of this new theory point to two practical points to be gained: first, the selection of a proper Rh– donor for an Rh– mother for blood transfusions; second, that the affected infant may maintain higher hemoglobin levels if transfused with Rh– blood since it is the Rh+ blood that is being destroyed. It also can be pointed out that with a history of previous erythroblastotic infants and repeated miscarriages and stillbirths, an attempt should be made to anticipate the birth of this type of infant and prepare for this eventuality.

The laboratory findings[4,7,8,23,25] are those of a

macrocytic, hyperchromic, hypocythemic anemia associated with a hemolytic type of jaundice. A study of the blood picture reveals a marked increase in the nucleated red cells (normal, 1 to 1.5 nucleated red blood cells per 100 white blood cells, disappearing by the fifth day of life). The hemoglobin varies from 25 per cent to 60 per cent (normal, 112 per cent to 120 per cent). The red cell count is from 1,000,000 to 3,000,000 (normal, 5,500,000 to 6,500,000). Reticulocytes are increased from 15 to 20 per cent (normal, 3.2 per cent to 6.5 per cent). Poikilocytosis and anisocytosis are present. Leukocytosis is often marked with an increase in the young white forms. Reports of white blood cell counts up to 260,000 are recorded[25] (normal, 16,000 to 20,000). Platelet counts are inconstant and fragility tests variable. The bleeding time is often prolonged; the coagulation time is not affected. The urine contains bilirubin. The stools may be acholic, but more often are not.

Pathology.[19,20,24,25]—Gross examination may reveal the extreme universal hydrops so extensive as to cause a complete distortion of the external contours. The tissues are edematous; ascites, hydrothorax and hydropericardium are present. Icterus, when present, may be the outstanding gross finding. Petechial hemorrhages in the skin, serous surfaces and mucous membranes are frequently present. The liver and spleen are enlarged in a great percentage of cases, the cause of which has not been definitely determined. Enlargement of the heart is another constant finding, supposedly due to distention of the cardiac capillaries with immature cells. The brain may be icteric and may be edematous. Intracranial hemorrhage is fairly common.

Microscopically the picture is that of extramedullary hemopoiesis and blood destruction with islands of erythropoiesis occurring in the liver, spleen, adrenals, kidneys and, occasionally, in other organs. These consist of immature red cells of varying stages of development. The bone marrow is hyperplastic. Iron containing pigments may be present in the Kupffer and hepatic cells of the liver, the reticulum cells of the spleen and, occasionally, in the kidney tubules. In the brain, bile deposition and cell destruction are noted in the nuclear areas. The pathologic condition of the placenta[11,24] is distinctive and should not be confused with other pathologic states if adequately studied. The placenta is increased in size, the placental-fetal ratio being reduced to 1 to 3 or less. It is usually grayish or icteric in color with friable, edematous villi. Microscopically the villi are enlarged and the vessels are filled with nucleated red cells. Vacuolization of the epithelium with persistence of the Langhans' layer is seen. Islands of erythropoiesis may be present.

The prognosis and mortality rate in erythroblastosis fetalis[8,23,24,25] can be estimated only roughly because of the many factors involved. Many cases reported do not supply sufficient findings to justify a conclusive diagnosis of the disease. If the literature is to continue presenting case reports without adequate findings for a true diagnosis, it will never be possible to evaluate prognosis or mortality rate. If stillbirths and miscarriages are to be attributed to this condition, then the death rate must be higher than the figures commonly given. Potter[24] cites instances of clinical erythroblastosis with jaundice and suggestive blood pictures, but the autopsy findings did not substantiate the diagnosis and she issues a warning against reporting cases of this nature. Certain prognostic findings are now accepted. Infants exhibiting universal hydrops are either stillborn or die shortly after birth. Only one such case is reported with recovery.[26] Those with icterus at birth, or developing icterus within a few hours, carry a worse prognosis than those cases developing jaundice later. Finally, those exhibiting only the anemia and other blood findings respond well to treatment. In all its forms, the disease must carry a mortality rate of 50 per cent or more.

Differential Diagnosis.[23,24,25,28]—The disease most frequently confused with erythroblastosis is congenital syphilis. Roentgenogram of the long bones showing osteochrondritis, positive serologic findings (although often unsatisfactory in the early months of life) and history or laboratory evidence of a syphilitic infection in the mother should help differentiate from this disease. Septicemia and other forms of infection can give a simulating picture. Signs of infection such as fever, dehydration, diarrhea, along with positive bacteriologic findings, help establish the diagnosis. Hemorrhagic disease of the newborn, accompanied by jaundice, is to be ruled out. Prothrombin determinations, predominate hemorrhagic tendencies and response to specific therapy help to eliminate this diagnosis. Physiologic jaundice presents a later development of icterus (fourth or fifth day) without typical blood findings and rarely causes disability. Congenital atresia or absence of the bile ducts also presents a late developing obstructive jaundice with acholic stools which progresses steadily in spite of treatment.

Treatment.—The treatment consists[4,20,23,25] primarily of transfusions repeated often enough to maintain the hemoglobin and red count at sufficiently high levels for proper oxygenation (60 per cent or above and 2,500,000 to 3,000,000 red blood count). Transfusion of whole blood intravenously is still the only entirely reliable remedy. Other agents have been used with variable results. Hampson[10] attributes the good results of intramuscular serum to the restraint of hemolysis until the liver begins to function normally. He begins treatment immediately with from 5 to 10 cc. of serum daily until the plasma bilirubin falls to within 1:150,000. Usually from 30 cc. to 40 cc. of serum are required. Other authors cannot confirm these good results. Reports of the use of liver extracts are conflicting. Calcium salts parentally are advo-

cated. Vitamin K has recently been tried. In addition to these measures, general care such as proper feeding, avoidance of dehydration, supplying of oxygen and regulation of temperature are all to be maintained.

SUMMARY

1. A case of erythroblastosis fetalis in dizygotic twins is reported.

2. Attention has been called to the recent theory in the pathogenesis of this disease and the findings in our case tend to support this theory.

3. A brief resume of the symptoms, physical and laboratory findings, pathology, differential diagnoses and treatment are presented.

Kansas City General Hospital.

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SAYS USING SULFANILAMIDE DERIVATIVES OVERCOMES CONTAMINATION OF PLASMA

Contamination with bacteria, the only serious objection to storing plasma (the fluid portion of the blood) in the fluid state for transfusion is overcome by the use of derivatives of sulfanilamide, preferably sodium sulfathiazole, Milan Novak, M.D., Chicago, states in *The Journal of the American Medical Association* for February 14.

He says that he has used "the sulfonamide [sulfanilamide] group of drugs in stored plasma as bacteriostatic [inhibiting the growth of bacteria] and bactericidal [bacteria destroying] agents. In all of my experimental work and in actual routine clinical usage over a two year period the method has been found to be completely satisfactory regardless of the temperature . . . [at which the plasma is stored] or duration of storage. The quantity of the drug necessary to accomplish the purpose in stored plasma is small, so that there are no noteworthy contraindications to its routine use.

"The sulfonamide drugs," he continues, "may be used in conjunction with any of the methods of processing plasma now available. . . . This method lends itself conveniently to civil and military use. The expensive and elaborate methods for processing this essential material thus become unnecessary in most instances."

LIST SYMPTOMS AND SIGNS INDICATING EARLY NUTRITIONAL FAILURE

"Early nutritional failure"—early deficiency states—is probably far more prevalent among the population of the United States than is generally recognized, the Subcommittee on Medical Nutrition, Division of Medical Sciences, National Research Council, says in a report published in *The Journal of the American Medical Association* for February 21.

In the report are lists of the symptoms and signs suggestive of early deficiency states in infants and children and in adolescents and adults. The Subcommittee warns that no symptoms or physical signs can be accepted as diagnostic of early nutritional failure. It says, however, that symptoms and signs "when verified by a competent physician and when other possible causes have been ruled out should be considered as significant indications."

Those symptoms in infants and children which parents or teachers might observe are as follows: Lack of appetite, failure to eat adequate breakfast, failure to gain steadily in weight, aversion to normal play, chronic diarrhea, inability to sit, pain on sitting and standing, poor sleeping habits, backwardness in school, repeated respiratory infection, abnormal intolerance of light and abnormal discharge of tears. The physical signs are bad posture and sores at angles of the mouth.

The symptoms in adolescents and in adults are as follows: Lack of appetite, lassitude and chronic fatigue, loss of weight, lack of mental application, loss of strength, history of sore mouth or tongue, chronic diarrhea, nervousness and irritability, burning or prickling of skin, abnormal intolerance of light, burning or itching of eyes, abnormal discharge of tears, muscle and joint pains, muscle cramps and sore bleeding gums. Sores at the corner of the mouth are the only physical signs listed in adolescents and adults which might be observed by laymen.

THE JOURNAL

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APRIL, 1942

EDITORIALS

ARMY SPECIALIST CORPS FORMED

To marshal unusual scientific, technical, labor and business skills directly into the Army, the War Department announced the creation on February 27 of the new Army Specialist Corps, under an executive order signed by the President. Mr. Dwight F. Davis, Secretary of War from 1925 to 1929, will head the new corps. Since it will be necessary to form an organization and draft regulations, applications for service with the corps should be withheld pending further announcement.

The War Department plan provides that the Army Specialist Corps will establish, under military control and in distinctive uniform, a selected body of skilled individuals to supply all arms of the service and all echelons of the Army. The corps will consist mostly of uniformed civilians highly qualified in professional, labor and scientific fields but who do not necessarily have to possess military knowledge and training. It will place wherever needed, including the theaters of operations, men of exceptional skill in the many technical services necessary to a modern army. In other cases Specialist Corps members, experienced in the administrative field, will release Army officers from administrative posts so that they may take up the combat and command duties for which they are specially trained. Except in special cases, appointments will be made of men over the active draft age.

A feature of the corps will be the adaptability of the physical requirements for entrance to the particular assignment, so as not to bar especially qualified men from service. The members of the corps who are to serve with troops in the field will, of necessity, have to pass the same physical examination as members of the Army. The facilities of the Civil Service Commission, contacts with national organizations and the many applications already on file in the War Department will be available to the corps. In some cases it may be necessary to train selected personnel for particular positions. In general, the purpose is to gain the services of the best qualified civilians for each essential position.

1942 ANNUAL SESSION OF A. M. A. TO BE INTER-AMERICAN MEETING

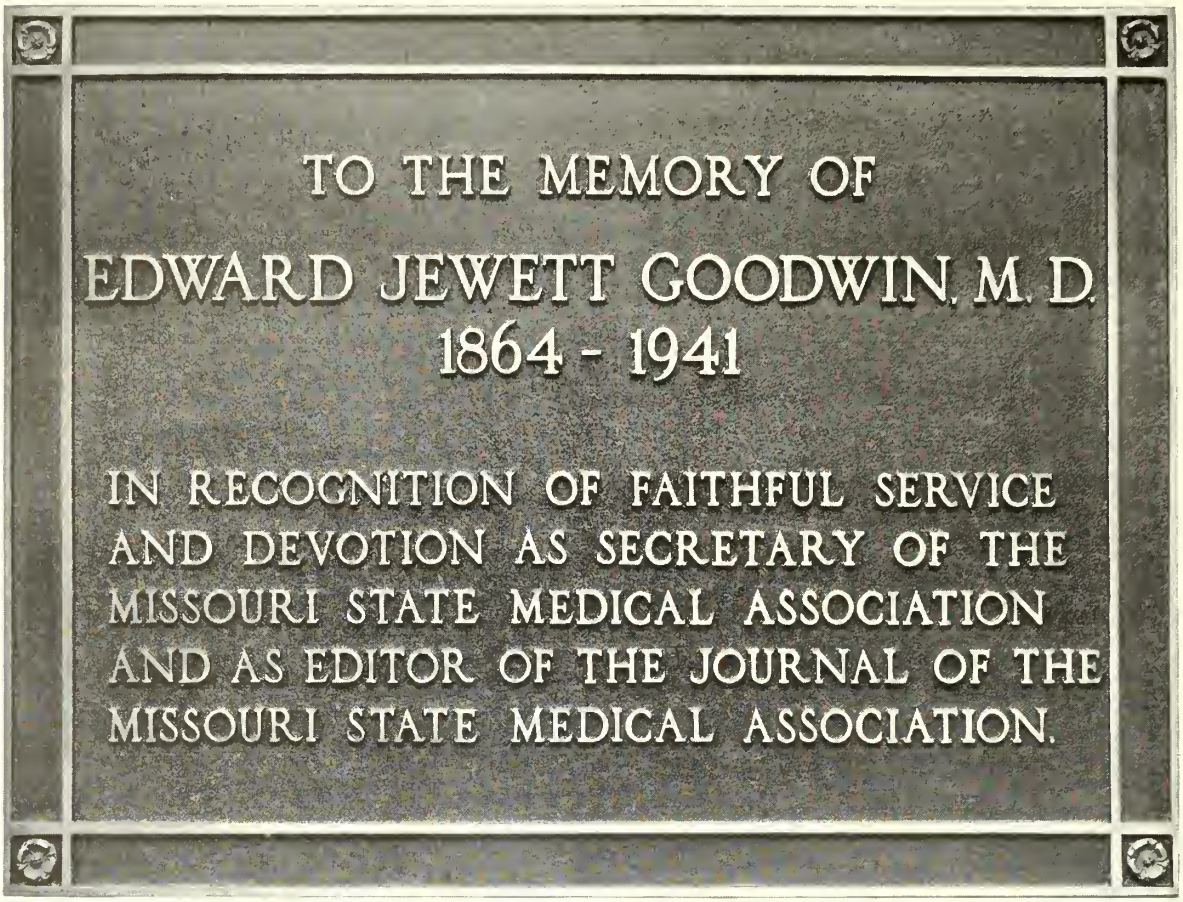
"The American Medical Association is scheduled to hold its annual session for 1942 in Atlantic City in the week of June 8 to 12," *The Journal of the American Medical Association* says in its March 7 issue. "Plans have been going forward steadily for this important meeting. Long before the United States entered the war, the House of Delegates and the Board of Trustees had agreed to endeavor to make this session an inter-American meeting, as an indication of the close relationship in medicine prevailing among all the American nations. The Council on Scientific Assembly and the secretaries of the various sections have been enlisting the attendance of physicians from the other American nations, including also contributions to the program and to the Scientific Exhibit.

"Already there are indications that many of the South American nations are inclined to participate. The Brazilian government has offered some exhibits dealing particularly with yellow fever and malaria. Subject of course to the difficulties of transportation, there is definite promise of the attendance of some of the leading figures in medicine in South America, Canada, the West Indies, Mexico and Central America. As a part of the promotion of inter-American relations, some of the leading foundations in the United States have brought to this country young physicians who are now serving internships in American hospitals or who are undertaking graduate education or research in American medical schools and universities. No doubt many of these South American representatives will attend the annual session. Moreover, the Coordinator of Inter-American Affairs has also agreed to aid in the promotion of this project. The Department of State is arranging to extend an invitation on behalf of the American Medical Association to the official medical societies of all the South American countries. Every effort is thus being made to insure a successful conclusion to the project under the extremely difficult conditions which now prevail.

"The medical profession of Atlantic City and of New Jersey are doing their utmost to insure a successful meeting; several events of special interest in relation to the war are being scheduled. Official representatives of various governmental agencies concerned with the medical participation in the war have promised to be present and to contribute to the program.

"A few physicians have written to the American Medical Association suggesting the abandonment of the annual session for fear that enemy naval vessels or aircraft might select Atlantic City as the special object of their ministrations during the time of the annual session. The vast majority of the medical profession of the United States and the representatives of various governmental agencies who have been consulted have felt that the meeting should by all means be held as originally planned."

Memory of E. J. Goodwin, M.D., Honored



Plaque Erected in Memory of Edward Jewett Goodwin, M.D.

"In recognition of Faithful Service and Devotion as Secretary of the Missouri State Medical Association and Editor of The Journal of the Missouri State Medical Association" is the inscription of a bronze plaque erected recently in the offices of the Missouri State Medical Association. The plaque honors the memory of Dr. E. J. Goodwin who served the Association from 1902 until his death, February 18, 1941.

Dr. Goodwin became Associate Recording Secretary of the Association in 1902, Assistant Secretary in 1903, Associate Editor in 1905, Editor in 1906 and Secretary-Editor in 1910. He was elected Secretary-Editor Emeritus of the Missouri State Medical Association in 1938.

Upon motion of Dr. R. E. Schlueter, St. Louis, to the House of Delegates at the St. Louis Session, subsequently referred to the Council, a committee was appointed to select and have erected a bronze tablet in memory of Dr. Goodwin. Drs. R. E. Schlueter, R. L. Thompson and C. E. Hyndman, St. Louis, served on this committee.

THE ENSUING ANNUAL SESSION

The Kansas City Session, which will convene April 27, 28 and 29, promises to be a valuable session and members who attended the meeting in Kansas City in 1933 know that the Jackson County Medical Society, the host society, is efficient in preparation for the meeting and hospitable in its entertainment.

Fourteen out of state guest speakers will appear on the program and round table luncheon meetings will be held at noon to furnish opportunity for members to present questions to the speakers. The Committee on Maternal Welfare will hold its annual meeting at noon on the first day of the meeting.

Past Presidents will be guests of honor at the Annual Banquet on Monday evening. Col. George F. Lull, M.C., Washington, D. C., Chief of the Personnel Division of the United States Army, will speak on "The Medical Officer in Our Wartime Army."

A medical pathologic conference and a surgical pathologic conference will be held on Monday morning concurrently with the first meeting of the House of Delegates.

The Jackson County Medical Society will be host at a smoker and entertainment on Tuesday evening. Alumni and fraternity reunions will precede the smoker.

The program for the session appears on page 116.

PHYSICAL REHABILITATION OF REJECTED REGISTRANTS

Tests of a physical rehabilitation program, intended to make many registrants who were rejected because of minor physical defects fit for active military service, have been authorized in Maryland and Virginia, National Headquarters, Selective Service System, has announced.

Authorization of the rehabilitation programs in the two states marks the beginning of a long-planned nation-wide physical rehabilitation campaign. When the results of these pilot tests are evaluated, a date for the inauguration of the national program will be set.

Only those registrants whose disabilities are certified by the Army as being remediable will be eligible to undergo treatment.

As one of the first steps in the Maryland and Virginia test programs, the Director of Selective Service of each state will submit to National Selective Service Headquarters lists of physicians and dentists qualified to correct physical defects of registrants. Physicians and dentists designated to render these authorized professional services will be paid by the Federal Government.

National Headquarters emphasized that any physician or dentist can apply to be designated to assist in the rehabilitation program. Physicians and dentists not already designated by registrants as their choice for dental or medical treatment, and other physicians and dentists who wish to take part in the program, may obtain the necessary application forms from their local boards.

NEWS NOTES

Dr. Richard L. Sutton, Jr., Kansas City, has been appointed as consultant to the National Institute of Health, Division of Industrial Hygiene.

Dr. Nelse F. Ockerblad, Kansas City, was a guest of the Polk County (Iowa) Medical Society on February 18. He spoke on "Diseases of the Urinary Tract and Adenexa in Infants and Children."

Appearing on the program of the Trudeau Club of St. Louis on February 24 were Drs. Ralph A. Kinsella, G. O. Broun, F. N. Zarlengo, J. L. Mudd, P. J. V. Corcoran, Raymond Martin and H. I. Spector, St. Louis.

Dr. E. M. Fessenden, Springfield, has been appointed chief surgeon of the Frisco Employees' Hospital Association, St. Louis, to succeed Dr. R. A. Woolsey, St. Louis, who was killed in an automobile accident.

Dr. E. Lee Dorsett, St. Louis, was a guest of the Effingham County (Illinois) Medical Society at Effingham on March 10. He spoke on "Treatment of Preeclampsia Toxemia and Eclampsia."

DEATHS

Gardner, Phonrose L., M.D., Mission, Kansas, graduate of the University Medical College of Kansas City, 1905; member of the Grundy-Daviess County Medical Society; aged 61; died December 1, 1941.

Dean, John McHale, M.D., St. Louis, graduate of the Washington University School of Medicine, 1896; member of the St. Louis Medical Society; member of the American Board of Surgery; Associate Professor of Surgery, St. Louis University School of Medicine; aged 66; died December 8, 1941.

ORGANIZATION ACTIVITIES

BUDGET FOR 1942

Salaries (Office and JOURNAL)	$12,750.00
Printing of THE JOURNAL	7,200.00
Public Relations	2,000.00
Defense	1,000.00
Postage	1,100.00
Postgraduate Instruction	1,000.00
Printing and Stationery	700.00
Traveling Expense of Executive Secretary	1,100.00
Telephone and Telegraph	600.00
Rent of Office and Light	1,100.00
Meetings:	5,000.00
Annual Session	
Council and Councilors Expenses	
Committee Meetings and Conferences	
Delegates to A. M. A.	
General Expense and Miscellaneous	700.00
	$34,250.00

FINANCIAL STATEMENT FOR 1941

R. A. LENNERTSON & COMPANY
ACCOUNTANTS
St. Louis

Robert A. Lennertson
CERTIFIED PUBLIC ACCOUNTANT

MEMBER AMERICAN INSTITUTE
OF ACCOUNTANTS

March 18, 1942.

Missouri State Medical Association,
634 North Grand Boulevard,
St. Louis, Missouri.

Gentlemen:

Pursuant to audit engagement, we have examined the books and records of the Missouri State Medical Association for the year 1941 and we now present our report thereon together with the following statements:

Exhibit A. Balance Sheet.
Exhibit B. Statement of Income and Expenses.
Exhibit C. Statement of Committee and Meeting Expenses.
Exhibit D. Dues Receivable and Membership by Counties.

SCOPE OF EXAMINATION

The recorded cash receipts for the year 1941 were traced, in the aggregate, into the bank account as deposits. In support of the cash disbursements for the period, we inspected checks paid by banks, purchase invoices and sundry data. Bank balances at December 31, 1941, were verified by reconcilement with certificates obtained direct from the depositories and the cash fund was counted.

The asset and liability accounts as of December 31, 1941, were substantiated by the records of the Association and the income and expense accounts for the year ended with that date were subjected to appropriate test verifications. Space in The Journal not occupied by articles, editorials and paid advertising has been filled by publishing reciprocal and complimentary advertisements.

BALANCE SHEET

The financial position of the Association as of December 31, 1941, is presented in the attached balance sheet, Exhibit A. The substantial amount of cash shown on the balance sheet indicates a sound financial condition.

Dues receivable in the sum of $3,953.00 are summarized by counties in the accompanying Exhibit D. These items are all past due and are offset on the balance sheet by a reserve account in the same amount as the unpaid dues.

STATEMENT OF INCOME AND EXPENSES

After providing for all ascertained expenses for the year 1941, the Association realized a net income of $2,705.06, the details of which are itemized on Exhibits B and C. The income and expenses of the Association for the last two years are summarized in condensed form as follows:

Particulars	Year 1941	Year 1940	Increase
Income	$37,119.43	$34,595.97	$2,523.46
Expenses	34,414.37	33,459.76	954.61
Net Income	$ 2,705.06	$ 1,136.21	$1,568.85

The books of account are maintained on the accrual basis with the exception of members' dues which are entered as receivables, but credited to income when collected. During the year 1941, three typewriters were purchased at a cost of $223.18, which sum has been charged to expense in lieu of depreciation in accordance with previous practice.

GENERAL

Fidelity bonds in force cover the Treasurer of the Missouri State Medical Association, in the sum of $20,000.00 and the Executive Secretary in the amount of $1,000.00.

The Association has fire insurance in the sum of $1,000.00 on the office contents which is the value at which the furniture and fixture account is carried on the books.

The records examined were found to have been well maintained and kept in conformity with generally accepted accounting principles applied on a basis consistent with that used in the preceding year.

Yours very truly,
R. A. Lennertson and Company,
By R. A. Lennertson,
Certified Public Accountant.

Exhibit A.

Missouri State Medical Association
Balance Sheet as of December 31, 1941

Assets

Cash:		
Mercantile-Commerce Bank and Trust Company (Treasurer's Account)	$15,036.84	
Mercantile-Commerce National Bank (Secretary's Account)	358.36	
Petty Cash Fund	25.00	$15,420.20
Accounts Receivable—Advertisers	$ 1,017.91	
Less Reserve for Bad Debts	233.00	784.91
Dues Receivable—Exhibit D		3,953.00
Furniture and Fixtures (Book Value)		1,000.00
Prepaid Expense—Journal Printing and Postage		625.98
		$21,784.09

Liabilities

Accounts Payable—Supplies and Expenses		$ 1,347.99
Deferred Credit to Income:		
Advance Payments by Advertisers	$ 134.00	
Advance Payments by Exhibitors	574.00	708.00
Contingent Liability to Members on Nine Malpractice Suits—$2,700.00		
Reserve for Uncollected Dues		3,953.00
Surplus:		
Balance January 1, 1941	$13,070.04	
Add: Excess of Income Over Expenses for the Year 1941 Per Exhibit B	2,705.06	
Balance December 31, 1941		15,775.10
		$21,784.09

Exhibit B

Missouri State Medical Association
Statement of Income and Expenses for the Year 1941

Particulars	General Activities	Journal Publication	Together
INCOME:			
Dues received (includes $1.00 Per Member Annually for The Journal)	$20,058.00	$ 2,931.00	$22,989.00
Rentals—Annual Session Exhibit Space	2,878.00		2,878.00
Rent from Subtenant (office space)	585.00		585.00
Subscriptions to The Journal—Nonmembers		34.10	34.10
Advertising space—The Journal		10,633.33	10,633.33
Total Income	$23,521.00	$13,598.43	$37,119.43
EXPENSES:			
Officers' Salaries	$ 4,304.39	$ 2,226.21	$ 6,530.60
Office Salaries	3,453.12	1,859.38	5,312.50
Office Rent and Light	1,610.75		1,610.75
Postage	841.32	383.75	1,225.07
Stationery, Printing and Office Supplies	589.07		589.07
The Journal—Paper, Printing, Mailing, etc.		6,768.11	6,768.11
Telephone and Telegraph	768.68		768.68
Insurance	58.73		58.73
Fees, Taxes and General Expenses	626.31		626.31
Bad Debts		141.25	141.25
Cash Discounts to Advertisers		428.78	428.78
Commissions on Journal Advertising		837.75	837.75
Traveling Expense—General	1,484.69		1,484.69
Committee and Meeting Expenses (Exhibit C)	7,751.90		7,751.90
Defense—Malpractice Suits	45.00		45.00
Equipment Purchases in Lieu of Depreciation	223.18		223.18
Donation	12.00		12.00
Total Expenses	$21,769.14	$12,645.23	$34,414.37
Net Income for the Period	$ 1,751.86	$ 953.20	$ 2,705.06

Exhibit C.

Missouri State Medical Association
Statement of Committee and Meeting Expenses for the Year 1941

Particulars		Amount
Annual Session		$ 3,696.85
Council Meetings	$ 339.51	
Councilors' Expenses	657.54	
Delegates to A. M. A.	397.64	
Woman's Auxiliary	91.75	1,486.44
Conferences and Councilor District Meetings	$ 292.00	
Conservation of Eyesight	195.37	

Medical Economics	49.62	
Medical Preparedness	36.78	
Program Committee	121.22	
Public Relations	1,445.27	
Scientific Work	4.90	2,145.16
Postgraduate Instructions: Speakers' Expenses	$ 423.45	423.45
Total		$ 7,751.90

EXHIBIT D.

Missouri State Medical Association
Dues Receivable and Membership by Counties
December 31, 1941

Counties	Number of Members	Dues Receivable: 1938 and Prior	1939	1940	1941	Total	Prepaid Dues
Andrew	10						
Audrain	17				$ 8	$ 8	
Barry	10						
Barton	11	$ 40	$ 24	$ 24	32	120	
Bates	11				16	16	$ 8
Benton	6						44
Boone	50				8	8	
Buchanan	104			8	112	120	16
Butler	18	32	32	32	56	152	
Caldwell-Livingston	16	8	8	8	24	48	
Callaway	20				8	8	
Camden	2						16
Cape Girardeau	39		8	16	24	48	2
Carroll	10				8	8	
Carter-Shannon	7						
Cass	18		8	8	8	24	
Chariton	18						64
Christian	3						
Clay	29		8	8	44	60	
Clinton	12						
Cole	38	16	32	40	56	144	8
Cooper	15	48	8	16	24	96	
Dallas-Hickory Polk	15						
DeKalb	3						
Dent	5				8	8	
Dunklin	22			8	24	32	
Franklin	24						64
Gasconade-Maries-Osage	3	47	16	16	16	95	
Greene	108				16	16	
Grundy-Daviess	19	56	16	32	48	152	
Harrison	7	64	8	8	16	96	
Henry	17				8	8	
Holt	7						
Howard	6						32
Jackson	580				68	68	
Jasper	64				40	40	
Jefferson	18			8	24	32	
Johnson	16						
Laclede	12				8	8	
Lafayette	31		8	8	40	56	
Lawrence-Stone	22			8	40	48	96
Lewis-Clark-Scotland	13	48	24	40	48	160	16
Lincoln	10				40	40	
Linn	15				8	8	
Macon	6						
Marion-Ralls	31			8	32	40	
Mercer	9						24
Miller	6						44
Mississippi	9			8	8	16	
Moniteau	7						56
Montgomery	6						
Morgan	3						
New Madrid	4	88	16	24	24	152	8
Newton	13				32	32	4
Nodaway-Atchison-Gentry-Worth	41	80	16	32	96	224	8
North Central	36				8	8	
Pemiscot	15			8	40	48	
Perry	5						40
Pettis	31				16	16	
Phelps-Crawford	21				24	24	
Pike	13	8	8	8	16	40	
Platte	11		8	8	16	32	40
Pulaski	7						56
Randolph-Monroe	23						
Ray	10	32	8	8	8	56	
St. Charles	26				8	8	8
St. Francis-Iron Madison-Washington-Reynolds	40						16
Ste. Genevieve	5						40
St. Louis	208			32	80	112	
St. Louis M. S.	1112		8	16	870	894	84
Saline	22				8	8	80
Scott	15	8	8	8	8	32	
Shelby	7		8	8	8	24	
South Central	31		12	20	72	104	
Stoddard	9			8	8	16	
Taney	2	72	8	8	8	96	
Vernon-Cedar	30	8	16	24	60	108	
Wayne	4	40	32	32	32	136	
Webster	3						
Totals	3302	$695	$348	$548	$2362	$3953	$874

JOINT CLINICAL CONFERENCE

The Committee on Postgraduate Course of the Missouri State Medical Association and the Postgraduate Committee of the Illlinois State Medical Society will hold a joint clinical conference at the Belleville Hotel, Belleville, Illinois, April 9. The program follows:

9:00 a. m.	Five Day Treatment of Syphilis, Arthur W. Neilson, M.D., St. Louis.
9:30 a. m.	Fractures: Handling Accident Cases, Carlo S. Scuderi, M.D., Chicago.
10:00 a. m.	Urology: Diagnosis and Significance of Hematuria, C. E. Burford, M.D., St. Louis.
10:30 a. m.	Endocrinology, James H. Hutton, M.D., Chicago.
11:00 a. m.	Geriatics, E. V. Cowdry, Ph.D., St. Louis.
11:30 a. m.	Round Tables led by speakers on morning program.
12:30 p. m.	Luncheon. Drs. G. C. Ostrich, Belleville; C. H. Neilson, St. Louis; H. L. Kerr, Crane; Curtis H. Lohr, St. Louis, speakers.
1:30 p. m.	Heart Forum, Robert S. Berghoff, M.D., Chicago; Drew Luten, M.D., St. Louis; James G. Carr, M.D., Chicago.
2:30 p. m.	General Medicine, Ralph A. Kinsella, M.D., St. Louis.
3:00 p. m.	The Role of Fluid Balance in Pediatrics, Walter W. Whitaker, M.D., Quincy.
3:30 p. m.	Surgery of the Chest, Brian Blades, M.D., St. Louis.
4:00 p. m.	Psychiatry: Recognition of the Psychopathic State in the Selectee, Francis J. Braceland, M.D., Chicago.
4:30 p. m.	Round Tables led by speakers on afternoon program.
5:00 p. m.	Social hour.
6:00 p. m.	Dinner. Drs. G. C. Ostrich, Belleville, chairman; Robert S. Berghoff, Chicago, presiding. Drs. Charles H. Phifer, Chicago; Harold M. Camp, Monmouth; James Stewart, Jefferson City; Roland R. Cross, Springfield; Alphonse M. Schwitalla, S.J., St. Louis; Major E. Mann Hartlett, Chicago, speakers.
8:00 p. m.	Address by Col. Paul G. Armstrong, Director, Illinois Selective Service System, Springfield.

MISSOURI STATE MEDICAL ASSOCIATION

85th Annual Meeting, Municipal Auditorium, Kansas City

The 85th Annual Session of the Association convenes at the Municipal Auditorium, Kansas City, Monday, Tuesday and Wednesday, April 27, 28 and 29, 1942.

HOUSE OF DELEGATES

First Meeting—Monday, April 27, 1942—9:30 a. m.

Music Hall Balcony Foyer, Municipal Auditorium

Order of Business

Report of Committee on Credentials.
Reading of Minutes of Previous Meeting. (Published in July, 1941, Journal.)
Election of Speaker of House of Delegates.
Election of Vice Speaker of House of Delegates.
Reading of President's Message and Recommendations.
Appointment of Reference Committees:
- Amendments to Constitution and By-Laws.
- Resolutions.
- Miscellaneous Affairs.
- Medical Education and Public Welfare.

Report of General Committee on Arrangements: F. I. Wilson, Kansas City, Chairman.
Report of Local Committee on Arrangements: Rex. L. Diveley, Kansas City, Chairman.
Report of the Secretary.
Report of the Treasurer.
Report of Committees:
- Scientific Work: J. E. Stowers, Kansas City, Chairman.
- Postgraduate: C. H. Neilson, St. Louis, Chairman.
- Publication: Walter Baumgarten, St. Louis, Chairman.
- Public Policy: Morris B. Simpson, Kansas City, Chairman.
- Defense: Charles E. Hyndman, St. Louis, Chairman.
- Medical Education and Hospitals: L. W. Dean, St. Louis, Chairman.
- Cancer: D. A. Robnett, Columbia, Chairman.
- Medical Economics: Carl F. Vohs, St. Louis, Chairman.
- Mental Health: B. Landis Elliott, Kansas City, Chairman.
- Maternal Welfare and Infant Care: W. H. Breuer, St. James, Chairman.
- Health and Public Instruction: E. Lee Miller, Kansas City, Chairman.
- Constitution and By-Laws: Herbert L. Mantz, Kansas City, Chairman.
- Fractures: Frank D. Dickson, Kansas City, Chairman.
- Conservation of Eyesight: Winfred L. Post, Joplin, Chairman.
- Control of Venereal Disease: G. V. Stryker, St. Louis, Chairman.
- Industrial Health: E. C. Funsch, St. Louis, Chairman.

Report of Special Committees:
- Physical Therapy: A. J. Kotkis, St. Louis, Chairman.
- Study of Medical Practice Laws: J. Milton Singleton, Kansas City, Chairman.
- Medical-Legal Affairs: James R. McVay, Kansas City, Chairman.
- Tuberculosis: E. E. Glenn, Springfield, Chairman.
- Rural Medicine: H. A. Lowe, Springfield, Chairman.
- Medical Military Affairs: H. B. Stauffer, Jefferson City, Chairman.

Appointment of Committee on Nominations.
Unfinished Business.

Recess Until 4:30 p. m.—Little Theater, Municipal Auditorium

Report of Council: Curtis H. Lohr, St. Louis, Chairman.
Report of Reference Committees:
- Amendments to Constitution and By-Laws.
- Resolutions.
- Miscellaneous Affairs.
- Medical Education and Public Welfare.

New Business (Resolutions, Memorials, etc.)
Selection of Place of Next Meeting.

Second Meeting—Wednesday, April 29, 1942—4:00 p. m.—

Little Theater, Municipal Auditorium

Report of Committee on Credentials.
Reading of Minutes.
Election of Officers:
 Election of President-Elect.
 Report of Committee on Nominations.
Report on Election of Councilors.
Installation of President.
Nominations for Standing Committees by President and Confirmation by House of Delegates.
Unfinished Business. (Report of Reference Committees.)

CLINIC

Monday, April 27, 1942—10:00 a. m.—Little Theater, Municipal Auditorium

Victor B. Buhler, M.D., and Ferdinand C. Helwig, M.D., Kansas City, Presiding

10:00 a. m. Medical Pathologic Conference.

11:00 a. m. Surgical Pathologic Conference.

MATERNAL WELFARE COMMITTEE

Annual Meeting

Monday, April 27, 1942—12:00 noon—Hotel President

W. H. Breuer, M.D., St. James, Chairman, Presiding

Selected Case Reports of Maternal Deaths.

Critique of Reports of Maternal Deaths
—Willard R. Cooke, M.D., Galveston

GENERAL MEETING

2:30 p. m. Faith, Hope and Cure-Alls
—K. W. Brimmer, M.D., Washington



In the matter of "cure-alls" the medical profession and the United States Food and Drug Administration have many common public health problems. Within the limitations of the Federal Food, Drug, and Cosmetic Act of 1938 and the limitations of its facilities and personnel, the Food and Drug Administration endeavors to mitigate the misguided faith and the unfounded hopes created by false and misleading claims of illegal labeling of drugs and devices. These common interests and the function and work of the Food and Drug Administration in connection with these numerous drugs and devices will be discussed and how the medical profession may best cooperate and participate in this work will be explained.

3:00 p. m. Gastric Ulcer.....Waltman Walters, M.D., Rochester



Many carcinomatous ulcers simulate benign gastric ulcers. Many benign gastric ulcers which seem to heal on a non-surgical regimen recur and operation becomes necessary. No better surgical results are obtained than those of properly performed operations for gastric ulcer and of the available procedures partial gastrectomy is the preferable one. The risk of this operation should not exceed 5 per cent.

3:30 p. m. Three Important Advances in Obstetric Therapy: Analgesia, Intravenous Ergotrate in Third Stage of Labor, Magnesium Sulphate in Eclampsia
—Willard R. Cooke, M.D., Galveston

4:00 p. m. Some Medical Emergencies and Their Management
—George Herrmann, M.D., Galveston

4:30 p. m. House of Delegates. Little Theater, Municipal Auditorium.

7:00 p. m. Dinner in Honor of Past Presidents. Ballroom, Hotel President.

9:30 p. m. President's Reception. Ballroom, Hotel President.

ANNUAL BANQUET

Monday, April 27, 1942—7:00 p. m.—Ballroom, Hotel President

R. B. Denny, M.D., Creve Coeur, President, Presiding

Tendered by Officers of the Association, Presidents and Secretaries of County Medical Societies, Members of the House of Delegates, Members of the Association and Their Guests, Members of the Woman's Auxiliary.

Address of Welcome
—A. E. Eubank, M.D., Kansas City, President, Jackson County Medical Society

Announcements
—Rex L. Diveley, M.D., Kansas City, Chairman, Local Committee on Arrangements

Introduction of Past Presidents of the Missouri State Medical Association.



The Medical Officer in Our Wartime Army
—Col. George F. Lull, M.C., Washington, D. C., Chief, Personnel Division, U. S. Army Medical Corps

President's Reception and Dancing.

GENERAL MEATING

Tuesday, April 28, 1942—8:30 a. m.—Little Theater, Municipal Auditorium



8:30 a. m. Address of the President
R. B. Denny, M.D., Creve Coeur



8:50 a. m. Address of the President-Elect
H. L. Kerr, M.D., Crane

9:10 a. m. Problems in the Treatment of Lesions of the Biliary Tract.....Waltman Walters, M.D., Rochester

A discussion of the more frequent causes of error in the differential diagnosis of lesions of the biliary tract will be given. Indications for

exploration of the common bile duct, both as a primary and secondary procedure, will be outlined. The management of cases of postcholecystectomy syndrome will form a part of the discussion.

9:40 a. m. The Differentiation of Obscure Anemia
—Russell L. Haden, M.D., Cleveland

The clinician frequently is confronted with patients suffering from serious anemia of unknown etiology. Treatment necessarily depends on finding the cause. The more frequent causes of an obscure anemia will be discussed and the more important differential points outlined. Illustrative cases will be cited.

10:10 a. m. Neurosurgery in the War...Cobb Pilcher, M.D., Nashville



In military surgery, neurosurgical cases are far more numerous than in civil practice and many of them must be cared for by general surgeons. For this reason, the subject should be of general interest. In this paper, the following aspects of wartime neurosurgery are discussed: (1) Civilian advisory activities with particular regard to preparation of manuals, institution of research programs, training of personnel and selection of special instruments. (2) Neurosurgery in the Army and Navy. (3) Recent advances in neurosurgery. (4) Treatment of craniocerebral injuries of war. (5) Prognosis and ultimate results.

10:40 a. m. Military Aspects of Cardiovascular Function
—George Herrmann, M.D., Galveston

11:10 a. m. Endometriosis.....Joe Vincent Meigs, M.D., Boston

11:40 a. m. The Value of Sympathectomy in the Treatment of Peripheral Vascular Disorders
—Harris B. Shumacker, M.D., Baltimore

The technic of dorsal and of lumbar sympathectomy is described and the applicability of these operations in the treatment of peripheral vascular disorders is discussed. A series of cases which have been studied by the author is presented. These cases include thrombo-angiitis obliterans, arteriosclerosis, Raynaud's disease and other vasospastic states, frost bite, post-phlebitic sequelae and leg ulcers. The importance of early recognition and of adequate treatment of peripheral vascular disease is emphasized.

ROUND TABLE LUNCHEON

Tuesday, April 28, 1942—12:00 noon—Hotel President

Ralph A. Kinsella, M.D., St. Louis, Presiding

Internal Medicine.....Russell L. Haden, M.D., Cleveland
George Herrmann, M.D., Galveston

Surgery.....Cobb Pilcher, M.D., Nashville
Joe Vincent Meigs, M.D., Boston
Harris B. Shumacker, M.D., Baltimore
Waltman Walters, M.D., Rochester

GENERAL MEETING

Tueday, April 28, 1942—2:00 p. m.—Little Theater, Municipal Auditorium

2:00 p. m. Gout.....Russell L. Haden, M.D., Cleveland



Gout is an important and interesting type of joint disease. It is the most frequently overlooked diagnosis in arthritis. Typical cases are easily recognized, but many patients do not show the classical textbook picture of gout. The findings in one hundred consecutive cases of gout will be reviewed and the more important diagnostic features emphasized.

2:30 p. m. Protrusion of the Nucleus Pulposus and Other Causes of Lumbar Nerve Root Pain
—Cobb Pilcher, M.D., Nashville

The problem of lumbosacral nerve root pain and its various common causes is discussed. Particular reference is made to protrusion of the nucleus pulposus of which the following aspects are considered: mechanism, symptomatology, special diagnostic procedures, conservative treatment, operative treatment, pitfalls and results of operation. The following additional causes of lumbosacral nerve root pain are discussed more briefly: tumors of the cauda equina and conus medullaris, tumors of bone, fractures of the lumbar spine, syringomyelia and certain congenital lesions.

3:00 p. m. How Shall We Treat Fibromyomata of the Uterus?
—William H. Vogt, M.D., St. Louis

3:30 p. m. Treatment of Acute Appendicitis
—Harris B. Shumacker, M.D., Baltimore



The problem of the treatment of acute appendicitis is a challenging one. Although there is general agreement as to the advisability of immediate appendectomy in acute unperforated appendicitis, there is considerable disagreement as to the best management of appendicitis with perforation. It is the author's opinion that all cases of appendicitis are best treated by operation and his reasons are given. The experience with the operative treatment of appendicitis at the Johns Hopkins Hospital is summarized. The use of sulfonamides, of gastric suction, of intravenous fluids and of other adjuncts in the treatment of appendicitis is discussed.



4:00 p. m. Amenorrhea and Dysmenorrhea
—Joe Vincent Meigs, M.D., Boston

4:30 p. m. The Correction of Acute Protein Deficiency in the Treatment of Surgical Shock, Severe Hemorrhage and Burns.....Robert Elman, M.D., St. Louis

6:00 p. m. Medical Alumni and Fraternity Reunions.

9:00 p. m. Smoker and Entertainment for Members. Jackson County Medical Society, Host. Hotel President.

GENERAL MEETING

Wednesday, April 29, 1942—8:30 a. m.—Little Theater, Municipal Auditorium

8:30 a. m. Practical Aspects of Newly Discovered Forms of Pneumonia.....Hobart A. Reimann, M.D., Philadelphia

In the last few years a form of pneumonia clearly distinguished from the typical lobar form but with signs, symptoms and laboratory data so characteristic as to be regarded as a clinical entity, has been encountered frequently. From analogy with other known pulmonary virus infections, a filtrable virus is thought to be the cause, but no definite proof has yet been obtained. Several "new" viruses causing similar disease of the respiratory tract have been reported recently such as "Q" fever, a psittacosis-like disease, and a mongoose-infecting virus. A résumé of the clinical symptoms and signs, epidemiology, etiologic studies and treatment of the disease syndrome tentatively called virus pneumonia will be presented.

9:00 a. m. Clinical Diagnosis of Cancer of the Breast
—Arthur Purdy Stout, M.D., New York

This presentation will include an exact description of the method of making a physical examination of the female mammary gland. Various physical signs will be illustrated and their significance and the methods of eliciting them will be discussed. The session will terminate with

some suggestions for distinguishing potentially curable from incurable breast cancer and the preferred method for treating each of these two groups.

9:30 a. m. Use of Stored Blood and Plasma in Clinical Practice
—Raymond O. Muether, M.D., St. Louis

10:00 a. m. Hypertension and Its Experimental Treatment
—Irvine H. Page, M.D., Indianapolis



A short description of the mechanism of the disease from the point of view of the Lilly Laboratory for Clinical Research will be given. Attempts to treat human and experimental arterial hypertension also will be discussed.

10:30 a. m. Hyperparathyroidism: Sixty-Seven Cases in Ten Years.....Oliver Cope, M.D., Boston



Hyperparathyroidism is not a rare disease. There have been sixty-seven cases proven by operation at the Massachusetts General Hospital in the last ten years. This unparalleled number is due to the diagnostic acumen of certain of our medical colleagues who have recognized that hyperparathyroidism is a disease of vagaries. It is not primarily a disease of bone; the classical type associated with skeletal changes is uncommon. The majority of cases have no bone disease; the most frequent sign is renal calculus. The probable effect of the parathyroid hormone and the clinical metabolic findings will be discussed in relation to the diagnosis. The treatment of hyperparathyroidism is surgical; it must be precise to meet the challenge of the diagnostician. Many parathyroid tumors have been overlooked by surgeons competent in the field of thyroid surgery; special training is needed. The problem involves both site and size of the tumor. As clinicians recognize more cases, size becomes increasingly important for milder cases are being diagnosed and, the milder the disease, the smaller the tumor. Unless cognizance is taken of the widespread distribution of parathyroid glands and of the peculiarities of isolating them, an increasing proportion of surgical failures will occur. Parathyroid tumors have been removed from the anterior mediastinum in thirteen cases of this series. The newer ideas regarding the operative management of this disease will be given. A short colored moving picture of the removal of a parathyroid tumor from the mediastinum will be shown.

11:00 a. m. The Recognition and Treatment of Degenerative Heart Disease.....William B. Kountz, M.D., St. Louis

Observations on revived human hearts in individuals who had hypothyroidism, diabetes or Addison's disease established that these hearts were less efficient in function than other hearts that were studied in this procedure. Correlation with animal experiments further substantiated that the removal of certain glands; namely, the thyroid, pancreas and adrenal, from the body produced a definite functional weakness of the myocardium. Clinical correlations in individuals with degenerative cardiac disease suggests that recognition of metabolic deficiencies and their treatment improve the cardiac function.

11:30 a. m. Practical Application of Industrial Hygiene to Small Plants.....Donald E. Cummings, Denver

ROUND TABLE LUNCHEON

Wednesday, April 29, 1942—12:00 noon—Hotel President

J. E. Stowers, M.D., Kansas City, Presiding

Internal Medicine.....{Irvine H. Page, M.D., Indianapolis
Hobart A. Reimann, M.D., Philadelphia

Surgery.....{Arthur Purdy Stout, M.D., New York
Oliver Cope, M.D., Boston

Industrial Hygiene.....Donald E. Cummings, Denver

GENERAL MEETING

Wednesday, April 29, 1942—2:00 p. m.—Little Theater, Municipal Auditorium

2:00 p. m. Surgical Lesions of the Ileum
—Arthur Purdy Stout, M.D., New York



A graphic presentation by means of lantern slides will be made of some of the lesions of the ileum usually treated by surgery. The diseases dealt with will include tuberculosis, regional enteritis, cicatricial stenosis following irradiation, deformities due to peritoneal bands and mesenteric lesions, vitamin deficiency, endometriosis, lymphoid hyperplasia, peptic ulcer of Meckel's diverticulum and various neoplasms such as carcinoma, lymphosarcoma, leiomyosarcoma, lipoma, fibroma, adenomatous polyp. The presentation will include brief case histories, a correlation of the pathologic changes with the symptoms and some evaluation of the efficacy of treatment.

2:30 p. m. New Diseases Encountered in the Middle West
—Hobart A. Reimann, M.D., Philadelphia

It may be asked whether any of the diseases to be described are actually "new" diseases in the sense that they have never existed before. It seems much more likely that all of them have always been present permanently or transiently and were heretofore unrecognized. The introduction of an infectious disease into a community in which it never before existed is always a possibility. It will, no doubt, become a certainty when, after the war is over, troops will return from the tropics bringing with them a variety of exotic infections. In the lecture, several newly recognized entities found in the Central States will be discussed and described as to their etiology, epidemiology, symptoms, diagnosis and control.

3:00 p. m. Principles in the Treatment of Burns
—Oliver Cope, M.D., Boston

Burns have recently accounted for about 10,000 deaths a year in the United States. In this war, burns are the commonest casualty and since they result from air raids, the civilian population as well as the armed forces is threatened. Doctors at home, as well as those in the army, must be prepared to treat suddenly large numbers of burn casualties. Even if Missouri escapes air raids it may be called upon to take care of those evacuated from either coast. Unintelligent care is economic waste. Intelligent care results not only in the reduction of the mortality and disability rates but also in shortened periods of hospitalization; overtaxed doctors and nurses are freed for a greater number. The ideal care of burns includes the prevention of its two major complications, shock and infection. The shock following burns is due to plasma loss and its treatment is rational. Suggestions regarding plasma transfusions will be made. Opinions differ, however, regarding the treatment of the burned surface, methods of prevention and cure of infection. It should be stressed that the majority of burns are sterile when they occur and that any agent promptly applied, provided it maintains the sterility, is better than waiting for a more complicated agent and hospital facilities The principles underlying the choice of the agents to be applied to the burned surface will be discussed. Certain concepts regarding the importance of nutrition to prompt healing of the wound and possible glandular deficiencies will be incorporated.

3:30 p. m. Treatment of Bright's Disease
—Irvine H. Page, M.D., Indianapolis

The treatment of the three stages of Bright's disease will be described and the importance of understanding the mechanism of the disease discussed.

4:00 p. m. House of Delegates. Little Theater, Municipal Auditorium.

5:00 p. m. Council. Little Theater, Municipal Auditorium.

SCIENTIFIC EXHIBITS

Municipal Auditorium

Anorectal Infection as a Cause of Coccygodynia, Pain in the Hip and Sciatica: Treatment by Pelvic Muscle Massage
—George H. Thiele, M.D., Kansas City

Coccygodynia is most commonly caused by spasm of the levator ani or the coccygeus muscles or both. Such muscle spasm is most frequently the result of anorectal infection acting either directly through lymphatic drainage to these muscles or indirectly through nervous reflex action. Pain in the superior gluteal region often is due to pressure on the superior gluteal nerve by the upper border of the spastic piriformis muscle against the lower border of the gluteus medius. Pressure of the lower border of the piriformis muscle impinges the sciatic nerve against the latero-inferior edge of the sacrosciatic foramen producing pain in the distribution of the sciatic nerve. Spasm of these pelvic muscles may be relieved by proper massage, thus relieving stress upon the sacrococcygeal joint or relieving pressure on the sciatic nerve and its branches.

Bed for Home Deliveries.....Edmund Lissack, M.D., Concordia

This bed offers the physician conducting deliveries in the home some of the advantages of a hospital delivery room. It is 36 inches high, has no foot end thus giving the physician the advantage of the short delivery position. If it becomes necessary and desirable to have the perineum of the patient extended out beyond the end of the bed in the operative position, this can be obtained easily, thus giving plenty of room for the use of instruments in delivery and repair work. Tractor straps are provided. A link fabric spring and a firm mattress are used. The frame is of seasoned oak construction and is washable. Total length is 74 inches, width 36 inches and height from floor including mattress 36 inches.

Carcinoma of the Skin, Manner of Local Spread
—Richard L. Sutton, Jr., M.D., Kansas City

The edges and the manner of spread of early and advanced carcinomas are examined. Histologic evidence is considered in an attack upon the question of whether the carcinoma process arises in a small nidus of cells (perhaps one cell) or whether there exist zones of intergradient transition of cell type between normal and neoplastic epithelium. The author interprets the evidence, selected from a collection of some 1,800 tumor specimens, as favoring the view that the carcinomatous epithelium of a given tumor is one kind of epithelium and the normal epithelium of the region is another kind. The two kinds abut and occasionally mingle, but they do not intergrade.

Endoscopy in the Diagnosis and Treatment of Diseases of the Air and Food Passages.....Evan S. Connell, M.D., and Barnard C. Trowbridge, M.D., Kansas City

Exhibit on Hyperparathyroidism.....Edward P. Heller, M.D., Kansas City

Fresh Pathologic Specimen With Demonstrations Daily
—Kansas City Pathologists

Jackson County Medical Society Committee on Industrial Practice
—Edward P. Heller, M.D.; Hugh L. Dwyer, M.D., and Ralph R. Myers, M.D., Kansas City

Kansas City Anatomical Society
—W. B. Black, M.D.; R. R. Coffey, M.D.; J. A. Growdon, M.D.; Carroll R. Hungate, M.D., and C. K. Smith, M.D, Kansas City

Management of Compound Facial Injuries
—James Barrett Brown, M.D., and Frank McDowell, M.D., St. Louis

Missouri State Department of Internal Medicine, Washington University School of Medicine William B. Kountz, M.D., St. Louis

COMMERCIAL EXHIBITS

Municipal Auditorium

A. S. Aloe Company, 1819 Olive Street, St. Louis. Booth 9.

The A. S. Aloe Company cordially invites you to visit their booth. They have on display a complete line of American-made Stainless Steel Surgical Instruments, Surgical Supplies, Laboratory Apparatus and Physical Therapy Equipment. Many new and exclusive items are shown. Members of their Kansas City Branch are in attendance.

The Liebel-Flarsheim Company, 303 West Third Street, Cincinnati. Booth 10.

Liebel-Flarsheim are exhibiting the L-F Short and Ultra-Short Wave Generators as well as the famous Bovie Electrosurgical Unit. Other newly developed and interesting physical therapy apparatus and accessories are being shown. Representatives will be pleased to demonstrate this modern equipment to members and the time spent at the Liebel-Flarsheim booth will prove well worthwhile.

Lederle Laboratories, 225 Dierks Bldg., Kansas City. Booth 11.

Lederle Laboratories are featuring an outstanding selection of their pharmaceutic and biologic products: the Sulfonamides, stressing Sulfadiazine—the latest and most magical of all the sulfa drugs; their Vitamin B Complex preparation;

Vi-Delta Vitamin line of Lederle products, to which standard group have been added the Multi-Vitamins which contain A, B Complex, C and D, and the convenient measured dose "Clipsules," each one of which gives the required potency of A and D Vitamins in an easy-to-handle method to infants. Biologicals: new laboratory reagent, Blood Grouping Sera (part of every United States Soldier's identification tag); Immune Globulin for measles; Scarlet Fever products. The exhibit is under the direct supervision of Robert F. Moss and there are staff attendants on hand to answer questions and to provide samples and literature on request.

Mead Johnson & Company, Evansville, Indiana. Booth 13.

"Servamus Fidem" means "We are Keeping the Faith." Almost every physician thinks of Mead Johnson & Company as the maker of Dextri-Maltose, Pablum, Oleum Percomorphum and other infant diet materials. But not all physicians are aware of the many helpful services this progressive company offers physicians. A visit to their booth will be time well spent.

Philip Morris & Co., Ltd., 119 Fifth Ave., New York. Booth 14.

Philip Morris & Company is demonstrating the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject, and problems on the physiologic effects of smoking.

E. R. Squibb & Sons, 745 Fifth Avenue, New York. Booth 15.

A number of new and interesting vitamin, glandular, biologic and chemotherapeutic specialties are features in the Squibb exhibit. Well informed Squibb representatives are on hand to welcome you and to furnish any information desired on the products displayed.

C. B. Fleet Co., 921-927 Commerce Street, Lynchburg, Virginia. Booth 16.

Phospho-Soda (Fleet) has been an ethical product for over half a century. It is a highly concentrated, purified, aqueous solution of the two U. S. P. phosphates, in stable form. It is nontoxic, rapid, but mild in action, without irritation of the gastric or intestinal mucosa. It is indicated in hepatic and gallbladder dysfunctions, and when a thorough eliminating and cleansing action is desired on the upper and lower gut.

H. G. Fischer & Co., 2323-2345 Wabansia Ave., Chicago. Booth 17.

The best way to look at an x-ray apparatus is with an x-ray. You have to get under the finish. It's down there that the real difference lies. To every member, accordingly, we give this special invitation: Look under the finish of the new Fischer models of apparatus shown! Fischer shockproof x-ray apparatus, short wave units, ultraviolet and other generators are built both for performance and to stand the very hardest day by day usage. Demand to be shown the real under-the-finish facts about Fischer Models.

W. E. Isle Company, 1121 Grand Avenue, Kansas City. Booth 19.



W. E. Isle Company invites each registrant to its booth. Well informed representatives will gladly discuss the newer appliances and furnish information about the products displayed. Artificial limbs, orthopedic appliances, surgical supports, maternity belts, elastic hosiery, trusses—you prescribe one or more of these articles frequently. Take this opportunity to examine the complete line of Isle Products.

John Wyeth & Brother, Inc., 1600 Arch Street, Philadelphia. Booth 20.

You are cordially invited to visit the John Wyeth & Brother booth where they are exhibiting the new Hemo-Guide, an aid to hematologic diagnosis. Samples of the Hemo-Guide are available at the booth. In addition, many of the Wyeth specialties will be displayed, including: Amphojel, Wyeth's Alumina Gel for the management of hyperacidity and peptic ulcer; Kaomagma, Wyeth's Alumina Hydroxide with Kaolin, for the control of diarrhea and colitis; B-Plex, Wyeth's complete Vitamin B complex elixir; Bepron, Wyeth's Beef Liver and Iron, for nutritional anemias; Silver Picrate Products, for the treatment of trichomonas vaginalis vaginitis.

Camel Cigarettes, One Pershing Square, New York. Booths 21 and 22.

Camel Cigarettes are exhibiting large detailed photographs of equipment used in comparative tests of the five largest-selling brands of cigarettes. These tests proved that Camels burn slower, and contain less nicotine in the smoke than other cigarettes. Representatives will be available to discuss this research.

The Mennen Company, 345 Central Avenue, Newark, New Jersey. Booth 23.

The Mennen Company is exhibiting their two baby products—Antiseptic Oil and Antiseptic Borated Powder. The Antiseptic Oil is now being used routinely by more than 90 per cent of the hospitals that are important in maternity work. Be sure to register at the Mennen exhibit and receive your kit containing demonstration sizes of their shaving and after-shave products; also, for the lucky number prize drawing to be held at the close of the convention for DeLuxe Fitted Leather Toilet Kits.

GREB X-RAY COMPANY, 1412 GRAND AVE., KANSAS CITY. BOOTH 24.

The Greb X-Ray Company, as a Missouri concern, takes special pride in the patronage extended us by Missouri customers. We hope you will visit with us at this meeting and inspect carefully the best and most modern in x-ray equipment.

THE BORDEN COMPANY, 350 MADISON AVENUE, NEW YORK. BOOTH 25.



Up-to-date information about Borden's scientifically designed infant foods is being presented. Biolac, a liquid modified milk, facilitates the preparation of formulas which fully satisfy all nutritional requirements of early infancy except vitamin C. New Improved Dryco, with increased potencies of vitamins A and D and quicker solubility, retains the same high-protein, low-fat composition of original Dryco and offers the same unique formula flexibility. Mull-Soy, an emulsified food for infants allergic to milk, is exceptionally palatable, readily digestible and easy to prepare for feeding. Other infant foods of special merit include Beta Lactose, Klim, Merrell-Soule Powdered Milks, and Borden's Silver Cow Irradiated Evaporated Milk.

GOETZ-NIEMER COMPANY, 1114 GRAND AVENUE-2ND FLOOR, KANSAS CITY. BOOTH 26.

M & R DIETETIC LABORATORIES, INC., COLUMBUS, OHIO. BOOTH 28.

M & R Dietetic Laboratories is displaying Similac, a food for infants deprived partially or entirely of breast milk; also powdered SofKurd. Representatives will appreciate the opportunity to discuss the merit and suggested application of these products.

PETROGALAR LABORATORIES, INC., 8134 MCCORMICK BLVD., CHICAGO. BOOTH 29.

The Petrogalar Laboratories, Inc. are offering, in addition to samples of the Five Types of Petrogalar, an interesting selection of descriptive literature and anatomic charts. Ask the Petrogalar representative, Mr. A. H. Sherburne, to show you the HABIT TIME booklet. It is a welcome aid for teaching bowel regularity to your patients.

WINTHROP CHEMICAL COMPANY, INC., 170 VARICK STREET, NEW YORK. BOOTH 30.

The Winthrop Chemical Company, Inc., extends a cordial invitation to visit their booth where representatives will gladly discuss the latest contributions made by this firm to the medical profession.

PARKE, DAVIS & COMPANY, DETROIT. BOOTH 31.

Featured in the Parke-Davis Exhibit are the sex hormones, Theelin and Theelol; antisyphilitiic agents such as Mapharsen and Thio-Bismol; posterior lobe preparations including Pituitrin, Pitocin and Pitressin; and various Adrenalin Chloride Preparations.

ABBOTT LABORATORIES, NORTH CHICAGO, ILLINOIS. BOOTH 33.

Abbott-trained representatives in attendance will be glad to exchange notes with you regarding the rather compresent selection of products on display. Shown in the exhibit are such outstanding specialties as Metaphen, Intravenous Solutions, Nembutal, Pentothal, Sulfonamides, Estrone, Estriol, Pollens and Vitamins (including Multi-Vitamin combinations, Thiamine, Riboflavin, Nicotinic Acid, Sodium Pantothenate and other B-complex factors, Klotogen, Hykinone, Kayquinone, Natopheral, etc.), Cofron, Glucophylline, Bismarsen, Strophanthin-K, Stilrone, Progestin, etc. Your visit will be most welcome.

CEROPHYL LABORATORIES, 2438 BROADWAY, KANSAS CITY. BOOTH 34.

Cerophyl Laboratories have on display photographic records of vitamin experiments which are both timely and interesting. Now that the nation's attention is centered on proper nutrition and corrective diets, you will not want to miss this exhibit. A cordial invitation is extended.

HOLLAND-RANTOS COMPANY, INC., 551 FIFTH AVE., NEW YORK. BOOTH 35.

Modern contraceptive technic is graphically illustrated with a motion picture, and all the various contraceptive materials including both the Koromex and Hyva diaphragms, Koromex jelly and H-R Emulsion cream, together with the most complete line of contraceptive specialties, are being demonstrated at the booth of Holland-Rantos Company. Be sure to call for samples and literature. Displayed, also, are the new Rantex Surgical Masks and Caps, now being used by hospitals all over the country. They represent an outstanding development.

SHARP & DOHME, PHILADELPHIA. BOOTH 36.

Sharp & Dohme have their new modern display this year featuring "Delvinal" Sodium, "Lyovac" Normal Human Plasma, "Lyovac" Bee Venom Solution, and other "Lyovac" biologicals. There is on display a group of biologic and pharmaceutic specialties prepared by this house such as Propadrine Hydrochloride products, Rabellon, Padrophyll, Riona, Depropanex and Ribothiron. Capable, well-informed representatives are on hand to welcome all visitors and furnish information on Sharp & Dohme products.

BURROUGHS WELLCOME & CO. (U. S. A.) INC., 9-11 EAST FORTY-FIRST STREET, NEW YORK. BOOTH 37.

Burroughs Wellcome & Co. (U. S. A.) Inc., New York, presents a representative group of fine chemicals and pharmaceutic preparations, together with new and important therapeutic agents of special interest to the medical profession.

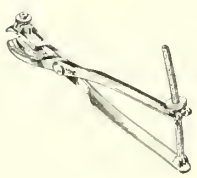
J. B. Lippincott Company, East Washington Square, Philadelphia. Booth 38.

Three new books and a new edition dominate the exhibit of J. B. Lippincott Company. The new second edition of Kracke's "Diseases of the Blood" is a must book for internists and Grollman's "Essentials of Endocrinology," and Youman's "Nutritional Deficiencies" are rapidly approaching that status. "Allergy in Clinical Practice" by the staff of the Cleveland Clinic achieves importance from its approach to the subject through specialists in fields other than allergy. The ever popular "Digest of Treatment" in its most recent issue will also be available.

The Medical Protective Company, Fort Wayne, Indiana. Booth 39.

The Medical Protective Company's representative, thoroughly trained in professional liability underwriting, invites you to visit their exhibit. He is entirely familiar with the principles of the reciprocal rights and duties of a doctor and patient and with the circumstances peculiar to that relationship. He will be glad to explain how his company meets the exacting requirements of adequate liability protection, which are peculiar to the professional liability field.

J. R. Siebrandt Mfg. Co., Kansas City. Booth 40.



The Goodwin Bone Clamp simplifies the technic for open reduction of long bone fractures. It is made with two separate jaws to enable the surgeon to use the lower jaw as a gouge to reduce trauma. With this clamp, the bone fragments are aligned easily. The Universal Drill Guide and calibrated lock stem control direction and depth of drilling, indicates the diameter of bone and calculates the correct length of screw to use for applying bone plates. When wiring fractures the entire operation, from drilling holes through fragments to the tightening of the wires, is all done with this instrument and a few simple accessories. See demonstration of this Clamp and other instruments and fracture equipment exhibited by the J. R. Siebrandt Mfg. Co.

The Kelley-Koett Mfg. Co., Inc., Covington, Kentucky. Booths 41 and 42.

One of the most important x-ray advances of many years, the Multicron Control, is being demonstrated by The Kelley-Koett Manufacturing Company, Inc., Covington, Kentucky. The Multicron is incorporated in the Keleket W-3-100 Combination Unit and is designed to take care of troublesome details automatically, leaving the doctor free to concentrate on the important factors of technic. It also assures work of uniformly high quality. The W-3-100 is a complete Combination Unit with generator, tube stand and table. It permits radiography and fluoroscopy at all angles from Trendelenberg to vertical. It is equipped with Bucky Diaphragm, motor tilt table, stereoscopic shift, etc. The Keleket booth will be under the direction of Mr. G. E. Geise, Vice President.

Ciba Pharmaceutical Products, Inc., Lafayette Park, Summit, New Jersey. Booth 43.

Ciba Pharmaceutical Products, Inc., are displaying their well-known specialties including Coramine, Nupercainal, Digifoline, Trasentine, etc. The latest information concerning Perandren, Metandren, Di-Ovocylin and other gynecogenic preparations is available, together with literature describing their clinical application where androgenic and estrogenic therapy is indicated. Their latest product of interest in the field of vitamins is Biotose. Two representatives of the firm are in attendance and will be glad to answer any questions in regard to the products displayed.

Pevely Dairy Company, 1001 S. Grand, St. Louis. Booth 45.



The Pevely Dairy Company is again exhibiting its Council Accepted Evaporated Milk. The use of evaporated milk in infant feeding has been quite universally adopted by pediatricians in an effort to simplify dietary problems. Pevely evaporated milk is suggested also in the treatment of gastric ulcers, acute digestive ailments, for the aged and for convalescents. It is always uniform, easy to prepare and its low cost is an added feature.

Cameron Heartometer Company, 666 W. Division St., Chicago. Booth 46.

Smith, Kline & French Laboratories, Philadelphia. Booth 48.

Smith, Kline and French Laboratories again welcome the opportunity of displaying their products including Benzedrine Inhaler, Benzedrine Sulfate Tablets, Paredrine Aqueous and Pentnucleotide, to the members of the Association. Representatives will be only too glad to discuss the products exhibited and will endeavor to answer any questions that may arise concerning them.

General Electric X-Ray Corporation, Chicago. Booth 49.

All users of General Electric x-ray and physical therapy apparatus are secure in the knowledge that they have competent technical and maintenance service readily available wherever and whenever called for. In Missouri alone, there are two G-E x-ray branch offices, one in Kansas City and the other in St. Louis. A manager, two salesmen and two servicemen work out of Kansas City, and a manager, three salesmen and two servicemen are stationed in St. Louis. They are ever ready to help you keep your G-E equipment at its highest operating efficiency. You can rely on them, too, to offer you practical and helpful suggestions for the most satisfactory and economical solution of your particular problems.

MISCELLANY

CONFERENCE ON MEDICAL SERVICE PLANS

The first Conference on Medical Service Plans was held in Chicago on February 14, 1942, at the headquarters of the American Medical Association and the Palmer House. Sixty-four persons were present including representatives from operating and proposed medical service plans in seventeen states and officers of state and county medical societies.

Dr. Olin West, Secretary and General Manager of the American Medical Association, in opening stated: "You are distinctly a part of a great movement that is essential to the welfare of the people of this country and it is highly desirable that you should get together to exchange information and opinions in order to arrive at a basic understanding of the problems involved."

Mr. J. D. Laux of the Michigan Medical Service, who was elected chairman of the Conference, indicated that interest in some form of prepayment for medical services has been moving along three well-defined fronts: (1) group clinic or consumer plans such as the Ross-Loos Clinic or the Transport Workers Medical Plan, of which there are seventeen such plans in operation with a total enrollment of 100,000 persons; (2) employee-employer mutual benefit associations (300 in operation) and the commercial insurance company plans (at least 250) providing cash indemnity benefits totaling $365,000,000 annually; and (3) non-profit medical service plans sponsored by medical societies, of which there are thirty-three plans in operation in nine states with an enrollment in excess of 750,000 persons. The non-profit medical society sponsored programs are developing most rapidly and give the best promise of contributing toward a better distribution of medical service.

The entire day was devoted to consideration of the basic principles and major problems involved in medical service and limited surgical benefit programs sponsored by medical societies. Following are some particularly pertinent points brought out in the discussion.

Contract practice plans, limiting service to a small number of physicians, can not provide a satisfactory service for an entire community. Non-profit community-wide or state-wide service plans are the proper type of organization for prepayment of medical services. The statement that voluntary plans lead to compulsory insurance applies to the chaotic situation created by a multiplicity of lay controlled or commercial plans, not to medically sponsored community programs.

In medical society sponsored programs, the contribution of the profession is the offering of services without additional charge to persons in the under-income group. Under a plan providing cash indemnity, the only thing the medical profession furnishes—service protection to the individual—would be taken away.

Experiments in the full coverage type of medical service plan are being undertaken to determine the effect of such plans on the private practice of medicine; how such plans affect the physician-patient relationship; what problems arise in connection with the practice of specialists; the difference between urban, rural and metropolitan practice, and all general problems relating to medical care.

A differential arrangement for specialists is a problem which one medical service plan treats in the following manner: When a subscriber uses a specialist as his family physician, the specialist receives general practitioner fees for such service. However, in the event the subscriber is referred to a specialist by his family physician for special services, an increased fee is paid. To be eligible for increased fees, the specialist must confine himself strictly to his specialty.

Enrollment based on individual physical examinations does not furnish as good selection as group enrollment.

The desirability of establishing somewhat uniform or model legislation for medical service plans was emphasized.

The question of the extent of joint operations with hospital service plans and the appropriate basis for cooperation lead to the establishment of a committee to meet with a committee from the hospital service plans.

It is of utmost importance to establish a centralized agency for the collection and dissemination of information. R. G. Leland, M.D., Director of the Bureau of Medical Economics of the American Medical Association, outlined a program of coordination through establishment of a glossary of terminology, an organizational outline of the plans and a composite tabulation of financial and statistical reports.

The Conference concluded with the appointment of a committee to determine the best method of establishment of a permanent organization of medical service plans throughout the country.

BONDS FOR VICTORY

Physicians are well aware of the importance of their work as physicians and surgeons in the Nation's all-out war effort. They are serving the armed and civilian forces abroad and at home while continuing the long range battle against disease.

At the same time, obligation to the nation does not end with professional service. Physicians as citizens must help pay the costs of the war. Taxes are higher than ever before, it is true, but more than this is necessary—investing dollars in war securities—the United States Defense Savings Bonds.

The Defense Savings Program is more than a war finance program. It is the people's investment program. Savings invested in Defense Bonds increase as much as 33⅓ per cent in ten years. At the same time, investing dollars in Government securities cuts down purchasing power for consumer goods and, by this process, helps to control the dreaded enemy—inflation.

The Treasury Department offers three series of Defense Savings Bonds: Series E, F, and G. Series E Bonds, "The People's Bonds," can be bought only by individuals. These are appreciation bonds which, if carried through to the ten-year maturity date, provide an average annual return of 2.9 per cent upon the investment. The smallest E Bond costs $18.75 and pays $25 at maturity. Others cost from $37.50 ($50 maturity value) to $750 ($1,000 maturity value). A bond of this series may be registered in the names of one or two persons or in the name of one person with a second listed as beneficiary. All post offices and most banks sell "The People's Bonds."

The F and G Bonds are primarily for associations, corporations and large individual investors. Series F bonds, like Series E, are appreciation bonds. They are purchased for 74 per cent of their face value, and at the end of the 12-year maturity period provide a return equivalent to an annual interest rate of 2.53 per cent. The smallest of the F Bonds costs $18.50 and pays $25 in twelve years; the largest costs $7,400 and pays $10,000 at maturity.

The G Bonds, unlike Series E and F Bonds, are sold at par; that is, the cost is the same as the face value. But the G Bonds pay interest semiannually at the rate of 2½ per cent throughout their twelve-year maturity period, thus providing a current income for the investor. Series G Bonds are issued in denominations from $100 to $10,000. Only the Treasury Department and Federal Reserve Banks issue F and G Bonds, but most banks will handle applications for them.

The minimum costs of E, F and G Bonds are $18.75, $18.50 and $100, respectively. But these are not the smallest amounts that can be invested in Defense Savings. Smaller amounts of money purchase Defense Savings Stamps which range in price from 10 cents to $5.00. When the equivalent of a minimum price bond

has been invested in Defense Stamps, they can be turned in for one of the registered interest-bearing bonds. The bonds and stamps represent individual reserves, just as good as cash in the bank, which can be drawn upon whenever a financial need arises.

Only a united nation fighting on every front can march on to Victory. For physicians, this means professional service and the investment of dollars in America's war effort.

ALL ROADS LEAD TO KANSAS CITY—FOR A 1942 CONVENTION PREVUE

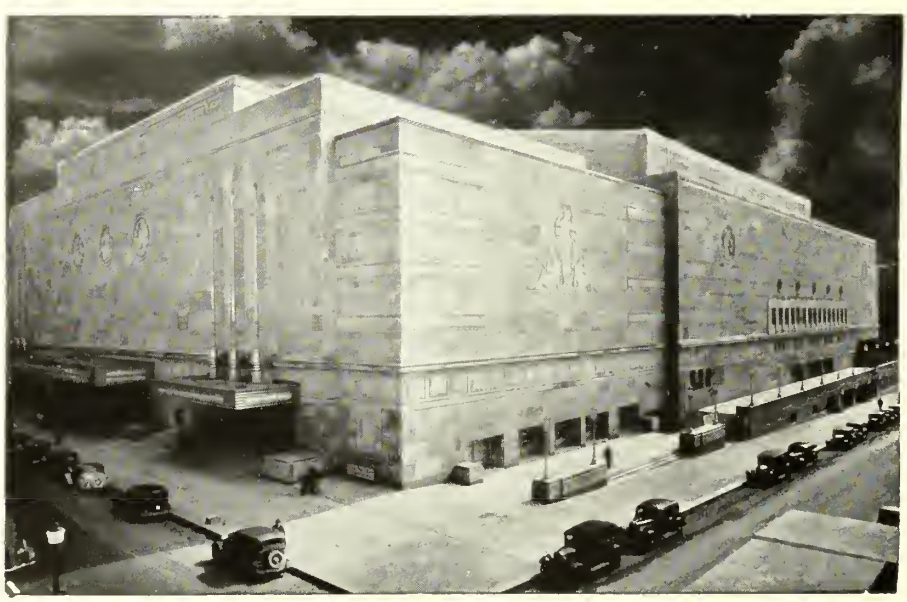
Physicians, more than most Americans today, have new obligations and opportunities—obligations to themselves, their patients and Uncle Sam—and opportunities to perform an essential service either in the battlelines or on the home front. With many of the younger men being called into active service, refresher courses become vitally important and medical meetings in wartime assume added significance in keeping the entire profession abreast with recent developments.

One may think of the dates of the 85th Annual Session of the Missouri State Medical Association, April 27 to 29, as an investment opportunity—a few days the physician owes himself from the 365 he devotes to patients, office and hospital routine. As dividends, he will have an opportunity to talk over common problems with other members of the profession; keep pace with Uncle Sam in utilizing new technics; renew old friendships; play golf; attend a banquet or two.

There are at least a hundred different Kansas Cities, all of which belong to the convention visitor. There's a world of transportation whose vast network of railroads, coast to coast airlines and transcontinental highways provide direct connections to a thousand "hometowns." For the 600,000 who live and work in Kansas City there's a day to day Kansas City whose markets help feed nations and whose aircraft factories, sprawling oil refineries and molten steel must be kept in constant motion for Uncle Sam. There's a city of hospitals,



Little Theater, Municipal Auditorium, where scientific sessions will be held.



Municipal Auditorium where the Session will convene.

trade schools and universities whose "products" are the citizens of tomorrow.

In the heart of the retail section, within easy walking distance of fourteen hotels, is the Municipal Auditorium where all meetings will be held and both scientific and commercial exhibits assembled. Members will appreciate the comfort, convenience and utility of this $6,500,000 building. Close by are an abundance of coffee shops, cocktail bars, restaurants, retail stores and hotel dining rooms, making taxi allowances unnecessary.

These are the convention essentials—but what of the city itself? What one will enjoy most of course depends on his own hobbies and individual tastes. He may want to revisit the Country Club district—world famous for the beauty of its homes. It was J. C. Nichols who originated the idea of central planning, providing shopping centers, golf courses, bridle paths and recreation centers for each of his districts. European art objects were imported to beautify park areas, and each home planned to harmonize with its general surroundings. But the Country Club District, now covering more than 4,000 acres, is its own best testimony to harmony and beauty. Plan to allow a little time to explore it.

For those whose tastes run in that direction, there is the Lighting Institute which has made an interesting series of tests with color in its relationship to visibility; the rapidly growing collection of the William Rockhill Nelson Gallery of Art and Mary Atkins Museum; the Kansas City Art Institute; Liberty Memorial with its collection of World War relics; and an extensive network of parks and boulevards at their best in late April.

Whether one prefers to travel by plane, highway or rail, "All Roads Lead to Kansas City" for April 27, 28 and 29.

CORRESPONDENCE

WARNING

The Intra Products Company

March 2, 1942
Denver, Colo.

To the Editor:

We wish to secure your assistance in apprehending a swindler who is victimizing many physicians in Missouri and Illinois. His game is to represent himself as a salesman for this company and by offering free goods and large discounts obtain cash with order. He then disappears and turns up in another place. We have had the police after him for two months but have little hope of catching him. We also have notified the Missouri Bankers Association as many of the payments are checks drawn in our favor to which he forges our endorsement, but the banks seem to be impotent.

This man goes under the name of F. S. Antrim or Floyd S. Antrim. His record and description are on file with the St. Louis police. He is wanted in a number of places. He has obtained money in California, Lebanon, Charleston and Sikeston and in a number of towns in Illinois.

We have only one salesman in Missouri, Mr. H. D. Herring, 624 Ballas Road, Kirkwood. Antrim is a rank imposter and has never been in our employ. Mr. Herring has a record of all Antrim's known transactions in Missouri.

Probably about the only thing you could do would be to print a notice concerning this man, asking the physicians to call the police should Antrim come to them.

Police inform us that we can base no charge against him here as all his crimes have been in Illinois and Missouri However, we understand that a short check charge is held against him in Denver by another concern.

Very truly yours,
THE INTRA PRODUCTS CO.,
S. A. POWELL.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

Moniteau County Medical Society, December 23, 1941.

Miller County Medical Society, December 26, 1941.

Chariton County Medical Society, December 29, 1941.

Montgomery County Medical Society, January 20, 1942.

Holt County Medical Society, January 26, 1942.

Dallas-Hickory-Polk County Medical Society, January 28, 1942.

Butler County Medical Society, February 21, 1942.

Scott County Medical Society, February 21, 1942.

Cass County Medical Society, March 5, 1942.

Lincoln County Medical Society, March 5, 1942.

Johnson County Medical Society, March 13, 1942.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

EIGHTH COUNCILOR DISTRICT

W. WALLIS SMITH, SPRINGFIELD, COUNCILOR

Dallas-Hickory-Polk County Medical Society

The Dallas-Hickory-Polk County Medical Society met at the Tillery Hotel, Humansville, February 11, at 7:00 p. m. for a dinner meeting.

The following members were present: Drs. R. C. Nevins, G. G. Robertson and A. J. Stufflebam, Humansville; V. H. Greenwood, R. E. Harrell and G. C. Plummer, Buffalo; T. D. Wrinkle, Halfway, and C. H. Brown, Fairplay.

Dr. W. Wallis Smith, Springfield, Councilor of the Eighth District, was the guest of honor and spoke on

the effects of the war on the medical profession and the medical profession's part in the war.

Dr. G. G. Robertson, Humansville, presented a film entitled "Vaginal and Perianal Repair," by Dr. Curtis of the Northwestern University.

R. E. Harrell, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Scott County Medical Society

The regular meeting of the Scott County Medical Society was held in the Public Library, Sikeston, February 18. Those present were Drs. G. W. H. Presnell, E. J. Nienstedt, E. A. Belden, Howard A. Dunaway, A. D. Martin, Sikeston, and W. O. Finney, Chaffee.

The following officers were elected: President, Dr. E. A. Belden, Sikeston; vice president, Dr. G. W. H. Presnell, Sikeston; secretary, Dr. W. O. Finney, Chaffee.

A resolution approving the organization of a Woman's Auxiliary to the Society was adopted.

Two applications for membership were referred to the Board of Censors.

Appropriate resolutions protecting the practice of members absent on military duty were adopted. Three members, Drs. Howard A. Dunaway and A. D. Martin, Sikeston, and A. E. Lee, Illmo, have applied for military duty.

Mobilization for Civilian Defense was discussed and organization was perfected.

The next regular meeting will be held at Sikeston on March 11.

W. O. Finney, M.D., Secretary.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the St. Francois County Courthouse, Farmington, February 27, at 7:30 p. m.

Dr. Paul J. Schrader, Farmington, spoke on "Prefrontal Lobotomy in the Treatment of Mental Disease," and showed a motion picture of the operative procedure and of postoperative cases. Discussion followed.

Dr. C. C. Ault, Farmington, spoke on "Involutional Melancholia in Women."

Dr. E. J. Nienstedt, Sikeston, Councilor of the Tenth Councilor District, and Dr. G. A. Sample, Chaffee, were guests.

Members present were Drs. H. W. Barron and M. B. Barber, Fredericktown; H. M. Roebber and Van W. Taylor, Bonne Terre; Reuben Appleberry, Emmett F. Hoctor, N. W. Hawkins, P. J. Schrader and C. C. Ault, Farmington; J. L. Thurman, Potosi; C. H. Appleberry, Flat River; J. P. Yeargain, Irondale.

C. C. Ault, M.D., Secretary.

BOOK REVIEWS

Nutritional Deficiencies. Diagnosis and Treatment. By John B. Youmans, A.B., M.C., M.D., Associate Professor of Medicine and Director of Postgraduate Instruction, Vanderbilt University Medical School, Nashville, Tennessee. Assisted by E. White Patton, M.D. Sixteen illustrations. Philadelphia, Montreal, London: J. B. Lippincott Companw. 1941. Price $4.00.

The chapters according to their titles are: Deficiency Diseases, Deficiencies of Vitamin A, Thiamin, Nicotinic Acid, Riboflavin, Vitamin C, Vitamin D and Calcium, Vitamin E, Vitamin K, Protein, Iron, Iodine, and Other Possible Deficiencies. A summary of the vitamins is then presented and the laboratory diagnosis and technics of determining nutritional deficiencies are given in the appendix.

The introduction in chapter I could have greater clarity and this fault is apparent also in some other sections of the book. The uniform outline followed throughout the text makes it easy to read and also to select any particular phase in which one is especially interested. The presentation of material is not too technical and yet all essential facts are presented in so far as such information is available at the present time. The chapters on protein deficiency and iodine deficiency are especially instructive.

The chief criticism of this book is the absence of a more complete bibliography in case one wishes to read original references. Either a more extensive reading list was drawn upon to write this book or too much material was transposed from the few references given. This was especially true of the chapters on vitamins and the reference to the symposium on vitamins by the American Medical Association. Some grammatical errors appear which no doubt shall be corrected in the next edition.

M. M. B.

The Care of the Aged (Geriatrics). By Malford W. Thewlis, M.D., Attending Specialist, General Medicine, United States Public Health Hospitals, New York City; Attending Physician, South County Hospital, Wakefield, R. I., etc. Third edition, entirely rewritten with 50 illustrations. St. Louis: The C. V. Mosby Company. 1941. Price $6.00.

Geriatrics is bound to develop an expanding place in medical practice. Already one finds an amazing increase in the literature upon the care of the aged. This volume by Thewlis is now in its third edition and has been entirely rewritten with a number of special chapters by worthy specialists in the fields of dentistry, deafness, tuberculosis and ophthalmology. There is one especially interesting chapter entitled "The Mathematical Angle in Surgery" with reference to the risk of surgery in the aged and the probability of added years of comfort versus the risk involved.

Thewlis has presented a real textbook and source book upon the history, hygiene, sociology, medicolegal relations, economics, nutrition, anatomy, physiology, pathology, therapeutic, nursing, sex life, prevention of premature senility and every practical and theoretic phase of the aging patient.

After the introductory chapters, as outlined, the author has sections of the book with subject chapters upon infectious diseases, noninfectious diseases, focal infection, pathologic conditions in old age and surgery of the aged. There are more than fifty illustrations and charts.

Not only the rising numbers of older people but the vagaries of paternalistic government through old age pensions and old age assistance, are bound to demand greater attention to geriatrics. Now that pediatric practice and public health preventive practices decrease the incidence and mortality of childhood diseases, one may even find that the aging pediatrician could transfer his interests to those of his own age. The older physician is bound to have more sympathy and understanding of his contemporaries.

Even though there be innumerable articles upon the many phases of the aging and aged, it will be well for those physicians who care for them to become familiar with the whole field and scope of geriatrics through such a masterful and complete book as Thewlis has produced through the aging and successful House of Mosby.

E. H. S.

THE JOURNAL

OF THE

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INTRASPINAL PROTRUSION OF INTERVERTEBRAL DISKS

OBSERVATIONS ON DIAGNOSIS

ROLAND M. KLEMME, M.D.
WENDELL SCOTT, M.D.
AND
R. DEAN WOOLSEY, M.D.
ST. LOUIS

Protruded intervertebral disks is one of the most controversial, and we believe, one of the most abused diagnoses in medicine today. There are undoubtedly certain patients suffering with low back pain and sciatica in whom such a diagnosis is justifiable. Barr, Mixter and Hampton established diagnostic criteria for this syndrome in 1934 and we believe that very little of value has been added since that time. In some clinics the diagnosis is made on the basis of history and physical examination. We thus far have not become that adept. In other clinics the diagnosis is made on the basis of air myelograms. Our experience with air myelography has been disappointing. We do not believe that the diagnosis can be proved or disproved by use of this procedure. Gas bubbles in the intestines often are confusing. The procedure in obese individuals, in our experience, has proved unsuitable.

The intraspinal use of lipiodol is the one diagnostic procedure that we believe satisfactory. We do not believe that the diagnosis can be proved or disproved without the use of lipiodol. In the past the chief objection to its use was that "a foreign body" was left in the spinal canal. Some few cases have been reported in which it became necessary to remove the oil because of root pain radiating in the distribution of the cauda equina where the oil usually lodges. Kubie and Hampton recently suggested a procedure for removal of the oil. We have improved upon this procedure by the use of a special type of needle. A second opening on the back of the needle just above the bevel allows a free flow of fluid when the usual opening may be closed by a nerve root or arachnoid (fig. 1).

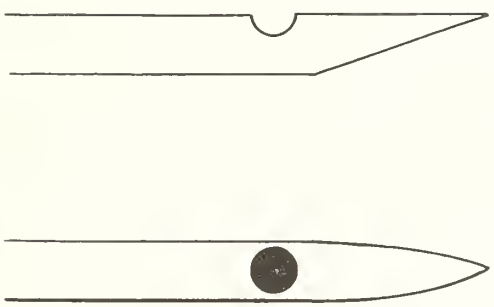


Fig. 1. Special point for needle described in text.

PROCEDURE

Materials Necessary.—There is needed a lumbar puncture set; special spinal needle, 18 gauge, of type shown in figure 1; tilting fluoroscopic table (a spot film attachment is advantageous) (fig. 2).

Method.—The patient is placed face down on the fluoroscopic table with a large sandbag beneath the iliac crests (fig. 2). This creates a lumbar kyphosis and permits easy introduction of the spinal needle even in large patients. The puncture then is done in the usual manner, taking care to introduce the needle in the exact midline. This is the most important single feature of the entire procedure. The position of the needle is checked fluoroscopically after the puncture is done and if it is not very nearly in



Fig. 2. Tilting table, position of patient for examination, lumbar puncture needle in place.

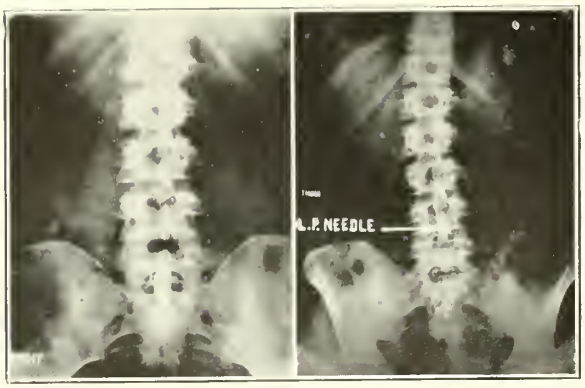


Fig. 3. Before and after removal of lipiodol.

the midline, the needle is reintroduced. From 3½ to 4 cc. of lipiodol are introduced into the spinal canal. The sandbag is removed and the fluoroscopy is done with the needle in place, the patient, of course, remaining face down in the original position. The following facts should be remembered in doing the fluoroscopy:

1. The lipiodol must be maneuvered into every part of the spinal subarachnoid space that is to be investigated.

2. The filling defect must be constant on repeated examinations.

3. The filling defect must persist when the patient is placed in different positions.

4. The lipiodol must be kept together in one single mass to fill adequately the spinal subarachnoid space at each level.

The oil is followed past each set of nerve roots and the sheaths allowed to fill. Any filling defects should be recorded with spot films in both anteroposterior and oblique views. After the fluoroscopy is done, the lipiodol is maneuvered beneath the needle by tilting the table. The oil is removed by suction applied to the needle. The special type needle shown facilitates this part of the procedure a great deal. We have used this procedure in the last twenty-eight cases with excellent results (figs. 3 and 4). We have failed in three instances.

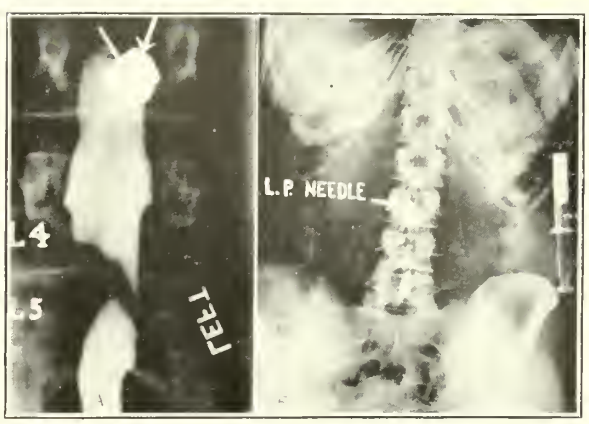


Fig. 4. A. Protrusion of disk between L4 and L5. B. After removal of lipiodol, a small amount of lipiodol remains blocked below the protruded nucleus.

COMMENT

We believe that a positive diagnosis of protruded intervertebral disk can be made only when definite roentgen ray evidence is obtained by use of intraspinal lipiodol. Lipiodol can be injected into the spinal canal and can be removed at conclusion of fluoroscopy. A special type of needle is suggested which will facilitate the procedure.

4952 Maryland Avenue.

STRANGULATED HERNIA

SUCCESSFUL REDUCTION AND REPAIR AFTER THIRTEEN DAYS

CASE REPORT

HERMAN F. BURKWALL, M.D.

ST. JOSEPH, MO.

It has been stated repeatedly that the viability of the contents of a strangulated inguinal or femoral hernia deteriorates in direct proportion with the size of intestinal loop caught, with the degree of tightness of the abdominal ring, with the number of repeated unsuccessful attempts at reduction prior to operation and to the length of time that had been permitted to elapse from the time of onset of the strangulation to the time of operation and reduction. There is another factor which must be considered in the patient's prognosis, for, although the loop of intestine may be firmly incarcerated in the hernial sac, the toxic symptoms frequently are widely disproportionate to the degree of intestinal obstruction demonstrated at the time of operation. That prolonged strangulation is not necessarily fatal has been noted in many reports on this subject. Neither is it an empiric truth that with prolongation the viability of intestinal content in the sac is more certainly lost.

A search of the available literature was made in order to learn the ratio of mortality from strangulated hernia to the time factor. It was found that the longest surviving patients were those in which attempt at reduction had been made, nonsurgically, but the reduction had been en masse with no liberation of the contents from the hernial sac. Seven such patients have been reported in the literature during the last three years. In all of them the history was typical, the duration from time of onset to operation ranged from seven to twelve days. In all of them the reduction had been attempted by well meaning friends or by the patient himself. When the pain persisted and signs of distension appeared, a surgeon was consulted. The position of the mass varied according to the effort made at forcing reduction, it being either doubled back on itself within the peritoneal cavity or at the abdominal ring. The mass had been pushed

out of the scrotal sac only. It was noted that, in spite of the degree of obstruction and the evident force exerted in the attempt at reduction, the intestine was viable in all seven cases.

A large proportion of the surgical patients seen in Hainan Island are those with inguinal hernias. Many of the hernias are incarcerated or are so large that manual reduction is both tedious and dangerous. Manual reduction without surgical repair is useless in many cases because the opening in the abdominal ring is so large that return to the upright position would cause the intestines to fall back into the sac. With such large hernias a truss is of small value. During the last nine years I have seen only two cases of strangulated hernia in which resection of the loop has been found necessary. Both of the patients died within a week of operation. One of them showed definite symptoms of a pulmonary embolus and the other was moribund on admission to the hospital and showed marked toxicity. It is unusual to examine a patient with an inguinal hernia before the fourth day after onset of strangulation when symptoms already point to obstructive ileus. The following case is presented because of several unusual factors. The hernia had not been reduced although rather forceful attempts had been made to do so. The patient entered the hospital presenting the typical signs of intestinal obstruction with ileus. He was brought to the hospital from a village three days walk from the hospital and arrived on the thirteenth day following the initial appearance of the hernia. Because of his severe condition he was given supportive measures for twenty-four hours before any attempt at surgery was made.

CASE REPORT

Case 3015 (new series). A Chinese male child, aged 15 years, was brought to the hospital on September 19, 1939, by his mother because of swelling of the abdomen with a "gas" sound on percussion, vomiting, constipation and acute abdominal pain for the last thirteen days. "On the twenty-fourth day of the past moon," thirteen days before admission to the hospital, the boy noticed a swelling in the right side of the scrotum which was painful and had appeared suddenly. He could not recall any unusual strain or heavy lifting prior to the first symptoms. There was no known rupture or appearance of swelling in the groin previous to this, but his mother thought that the swelling might be due to "rupture" so had attempted to "push the lump back into the body" with the help of the patient himself. This was not successful. The pain persisted and, although the patient felt an impulse to defecate, he was unable to have any passage at stool from the time of the first appearance of the swelling. On the third day after the appearance of symptoms the boy noticed that his stomach felt "full" and seemed to be swelling. Also he noticed that at intervals he felt his stomach grow tighter, at which time he could see the outline of his intestines which seemed to move from the left to the right side. This was accompanied by loud gurgling sounds. The periods became more frequent and painful with each succeeding day. On the ninth day the child became nauseated and vomited. This became persistent and for the last two days before reaching the hospital the vomitus was dark brown in color and contained lighter colored flakes. The parents did not recall any previous hernia nor was there any hernia known in the immediate family. There was no history of venereal disease or other congenital or hereditary disease in the family or patient.

On admission to the hospital, physical examination showed a well developed slender boy about 15 years of age lying in bed with apparent acute pain. Both legs were flexed on the abdomen but could be extended. The abdomen was distended and the outline of the intestines could be seen with clearly visible peristaltic movement. Peristalsis was accompanied by sharp cries of pain and loud gurgling sounds which could be heard by the examiner standing upright at the bedside. Percussion note was resonant over the abdomen. There was a thick cardlike mass extending from the right external inguinal ring down into the right scrotum for a distance of two inches which was tender to touch and attempt at reduction caused cries of pain. The left inguinal ring was large but no hernia was felt. The right scrotal sac appeared to be approximately twice the size of the left sac and did not transilluminate. The heart and lungs showed no remarkable change in size or function. Neurologic examination showed no abnormal reflexes. Kahn test for syphilis was negative. Urinalysis showed no sugar but a moderate amount of albumin (2 plus). Microscopic examination of urine showed occasional pus cells, many oxalate crystals and much amorphous debris but no casts. Hemoglobin was 70 per cent (Sahli), white blood cells, 11,950; polymorphonuclears, 74 per cent; eosinophils, 2 per cent; small lymphocytes, 12 per cent; large lymphocytes, 11 per cent; mononuclears, 1 per cent.

A preoperative diagnosis was made of right obligue inguinal hernia with incomplete obstruction and combined ileus. Operation was advised to relieve the obstruction and, if possible, repair the hernia. The patient and his mother were warned that there was a possibility that it would be necessary to remove a portion of the strangulated gut and that prognosis after such a long interval of ileus was grave.

As soon as the patient had been placed in his hospital bed, a duodenal tube was passed through the right nostril and slow continuous suction, by the Wangensteen continuous drip method, was started. This resulted in the removal of a large amount of gas and dark brown fluid. The patient said that the passage of this gas and fluid gave him great relief. As his pulse was irregular, weak and rapid and his respirations were labored, operation was delayed for twenty-four hours so that supportive measures could be instituted to improve the general condition. These included the administration of two liters of isotonic saline solution by hypodermoclysis.

Operation was performed on September 20, at 11:15 a. m., under 2 per cent novocain solution injected locally along the proposed line of incision with stellate injections at both ends. Throughout the operation the pulse remained at 96 per minute and respirations at 22. The incision was made somewhat parallel to Poupart's ligament extending from the anterior superior spine of the ilium down over the pubic spine on to the scrotum of a total length of 4 inches. The sac was found to be adhered to the tunica vaginalis at the upper pole of the testis. The vessels of the cord were engorged and bled easily. The wall of the sac was thick and could be freed from the cord and cremasteric muscle fibers with difficulty. When opened, the sac was found to contain a small amount of blood-tinged serous fluid and a loop of intestine about 3 inches long. The intestine appeared somewhat distended with gas which was easily pressed back into the peritoneal portions. The color of the incarcerated loop was pink and the loop was adherent to the wall of the sac by fibrinous adhesions which occurred at intervals along its course. There was a tight constriction at the level of the internal ring which was cut. When the constriction was loosened, other loops of intestine were extruded. The original loop was tested for viability and bleeding points ligated. The

entire extruding gut was replaced into the peritoneal cavity and the neck of the sac was transfixed with No. 2 chromic catgut and closed with a purse-string suture. The excess portion of the sac was dissected away and the stump transplanted above the internal ring. The floor of the canal was strengthened by suturing the white fascia to the shelving portion of Poupart's ligament and the aponeurosis of the external oblique muscle was also sutured below the cord to Poupart's ligament imbricating the free edge of the lower portion of the aponeurosis above the upper portion. The cord was thus transplanted to lie between the fascia and the subcutaneous tissues. As the hernial sac had been adherent to the tunica vaginalis, the terminal portion was closed as in hydrocele and the testis replaced into the scrotum. The skin was closed with a lock suture of No. 4 black silk, doubled. A small rubber tissue drain was left in the scotal end of the wound. The wound was closed at 12:15 a. m., an hour after beginning the operation.

The patient was returned to bed with instructions to the attendants that he was to be given small quantities of hot fluids as he desired. A liter of isotonic saline was given by hypodermoclysis and the Wangensteen continuous suction through an intranasal duodenal tube was resumed. Eight hours after the operation a rectal tube was inserted and the patient, on the following morning, reported that he had passed a large amount of flatus and fecal material during the night and that his abdominal pain had disappeared completely. He stated that he had no discomfort or pain or rumbling in the abdomen since the conclusion of the operation.

Except for a slight infection of two of the sutures, the patient's wound closed by first intention and his recovery was complete and uneventful. He left the hospital on the eighteenth postoperative day. Due to war conditions he did not return for further observation.

SUMMARY

A case has been presented in which there was a strangulated inguinal hernia of thirteen days duration. The patient showed severe symptoms of combined ileus, due to an incomplete obstruction of the small bowel. I feel that his condition was much improved preoperatively by the early institution of slow continuous suction by means of a duodenal tube placed intranasally. Preliminary deflation of a greatly distended gut should be done in any patient presenting symptoms of obstruction.

312 North Noyes Boulevard.

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In advanced asphyxia, after breathing has stopped, rhythmic inflation and suction of oxygen or oxygen-carbon dioxide (by means of an apparatus) at safe pressures is definitely superior to manual artificial respiration or rhythmic inflation (with an apparatus which blows air into the lungs without withdrawing it), George L. Birnbaum, M.D., and Samuel A. Thompson, M.D., New York, declare in *The Journal of the American Medical Association* for April 18 in the first of a series of papers on their investigations of various methods of resuscitation.

DIVERTICULA OF THE DUODENUM

J. H. HERSHEY, M.D.

ST. LOUIS

According to several quite complete articles, by Perry and Shaw,[17] Edwards,[7] Ogders[16] and others, the first case of diverticulum of the duodenum was found postmortem by Chomel in 1710.[16] The sac as described by him was full of stones and communicated with the gallbladder, so it may have been a cholecystoduodenal fistula instead of a true diverticulum.

With the exception of the cases reported by Perry and Shaw, who in 1893 were apparently the first to make a systematic investigation of this curiosity, most of the diverticula reported before 1913 had been found accidentally in the dissecting room. The infrequency with which this condition was encountered is shown by the fact that Ogders was able to find less than a hundred cases reported up until 1912, and this is further emphasized by the fact that in 1929-1930 he was able to find reports of only twenty-three cases in which an excision of a diverticulum had been done.

Credit for demonstrating the presence of these diverticula during life, and also credit for proving to the medical profession that they are not the rare curiosity which they seem to have been considered until that time, goes apparently to J. T. Case.[4] In 1912, at the Minneapolis meeting of the American Medical Association, he exhibited plates of four patients in whom he had been able to demonstrate the presence of a diverticulum of the duodenum by means of the roentgen ray. Following Case's demonstration, radiologists all over the world became interested in this subject and the technic was described in detail in 1920 in this country by Case, in England by Spriggs and Marxer and in Germany by Clairmont and Schintz. Since then roentgenologists have accumulated evidence to show that a diverticulum of the duodenum is a distinct and not uncommon entity and frequently bemoan the fact that the surgeon thus far has neglected it in favor of more frequent or more accessible lesions in the abdominal cavity. In 1915, Forsell and Key[16] diagnosed diverticulum of the duodenum by means of the roentgen ray, and they had the rare satisfaction of being the first to confirm such a diagnosis at operation. Since then, and especially since 1930, the number of such operations must run into the hundreds.

Incidence.—Before Case demonstrated how to find these diverticula they were discovered at postmortem examination or occasionally during an exploratory laparotomy and were thought to be a most unusual phenomenon. Since 1912, however, evidence is accumulating indicating that a rather surprising percentage of the population suffers from or at least harbors, a diverticulum of the duodenum.

From the Department of Surgery, St. Louis University School of Medicine.

Table 1. *Frequency of Diverticula in Gastrointestinal Examination*

Author	Cases Examined	Number of Diverticula	Per Cent
Case	6847	85	1.2
Andrews	2200	26	0.18
Cryderman	770	40	5.19
Spriggs & Marxer	1000	10	1.0
Edwards	4631	31	0.66
Desloge Hospital	3202	16	0.5
Total	18,650	208	1.11

Various authors have given varying figures. Andrews[1] found twenty-six diverticula in 2,200 consecutive roentgen ray examinations of the gastrointestinal tract, an incidence of 0.18 per cent. Cryderman[5] found forty in 770 cases, an incidence of 5.19 per cent. This discrepancy may be due to some variation in technic. In Firmin Desloge Hospital sixteen patients having a diverticulum of the duodenum were found in 3,202 consecutive roentgen ray examinations of the gastrointestinal tract, an incidence of 0.5 per cent. This is the same figure found by Larimore and Graham in St. Louis at Barnes Hospital.[11] The figures from five authors added to those from Firmin Desloge Hospital give 218 cases in 18,650 examinations, a percentage of 1.11 per cent. While an incidence of 0.5 per cent or even 1.0 per cent is not an alarming figure, the number is sufficiently significant to justify consideration. At least in Firmin Desloge Hospital it occurs with almost the same frequency as cancer of the esophagus and cancer of the intestines, and it is found more often than a diverticulum of the esophagus. No one can say that these conditions are of minor importance, rather, they have merited the attention of some of the best surgeons in the country, while diverticula, although seldom producing the fatal ending of cancer, are most distressing and have to a great extent been neglected.

The number found in postmortem examination is greater than those found by roentgen ray. Linsmaaer[12] found forty-five in 1,367 postmortem examinations, which is 3.3 per cent. Grant,[9] by injecting each duodenum as it came in to his laboratory, was able to find six in thirty-seven bodies which is an incidence of 16 per cent. The cases which are found by roentgen ray presumably have had some reason for having had such an examination, and since the number found at postmortem is greater than those found by roentgen ray one must conclude that there are some people with a diverticulum which does not cause them any inconvenience.

The vast majority of these primary sacs occur in the second portion of the duodenum, a few in the third and fewer still in the fourth portion. In the sixteen cases in the series I am reporting, only one was found in the first portion and it was secondary to an ulcer, one occurred in the third portion and the remaining fourteen were in the second part of the duodenum along the medial aspect. In two of these patients two diverticula were found close together and several of them had diverticula in the colon.

Description.—The diverticula which are found in the duodenum are of two distinct types which can be distinguished by the microscopic findings, the location and the cause. Some authors divide them into true and false, the true type being those in which the wall of the sac is formed by the same layers which make up the wall of the duodenum, while in the false type the muscular layer and the layer of Brunner's glands are missing. Some divide them into congenital or acquired. They feel that the sacs which have walls with the normal coats have been present since birth and may have started as embryonic buds such as those from which the pancreas or the liver originate. The thin walled sacs, since they are nearly always found in late adult life, are believed to be associated with senile changes and so are called the acquired type. The classification which I follow divides them into primary sacs in which the cause is not known, and into secondary sacs in which they are associated with some other condition in or around the duodenum.

Table 2. *Symptoms*

Identity	R. Y.	F. H.	E. L.	J. F.
Age and Sex	F. 65	F. 38	F. 60	M. 29
SYMPTOMS				
Pain	yes	yes	mild	yes
Nausea	no	yes	occas.	no
Vomiting	no	yes	no	no
Belching	yes	yes	yes	no
Tenderness	yes	yes	mild	yes
Food relation	?—fat	?	?	yes
Periodicity	yes	yes	yes	yes
Duration	5 yrs.	24 yrs.	2 mos.	3 mos.
PRE-ROENTGEN RAY DIAGNOSIS				
Stomach	?	?	?	yes
Gallbladder	yes	?	no	?
ROENTGEN RAY DIAGNOSIS				
Esophagus	neg.	neg.	neg.	neg.
Stomach	neg.	neg.	neg.	neg.
Gallbladder	?	neg.	neg.	neg.
Diverticulum				
Location	2nd	2nd	2nd	1st
Retention	yes	yes	no	no
Tenderness	yes	yes	mild	mild

This is an attempt to find some symptom or group of symptoms which might help in the diagnosis of a diverticulum. These cases are representative of the entire group and show how difficult it is to make a correct diagnosis without roentgen ray. R. Y. is a typical case; F. H. is severe; E. L. is mild; J. F. had a duodenal ulcer.

The primary type, the etiology of which is not established, is found most frequently in the second portion of the duodenum, occasionally in the third or fourth part and sometimes several sacs may be found in the same patient, but they are never found in the first portion of the duodenum. The location is remarkably constant. They are always found along the medial aspect of the second part of the duodenum as it curves around the head of the pancreas, or along the upper surface of the third or fourth portions. They may lie to the anterior aspect of this medial border or to the posterior, or they may be situated midway between and be buried within the substance of the pancreas. These primary sacs are thin-walled, seldom larger than 1 or 2 cm., slightly longer than they are wide, and they

open into the lumen of the gut by a mouth which is usually wide but may be narrow and slitlike. By invaginating a finger into the duodenum wall, the margin of this stoma can be felt as a distinct ring which gives one the impression of a sphincter. Microscopically the distinguishing feature of these primary sacs is that the muscular coat is either missing or much thinner than the wall of the parent gut and, also, the layer formed by Brunner's glands is usually absent. The muscular layer of the duodenum frequently is found to end abruptly at the stoma of the sac and it may curl up so as to form a sphincter-like ring. If muscle fibers should be found in the wall of the sac, they invariably become thinned out until no fibers or at least very few can be found at the fundus.

The secondary type is found, as the term implies, in association with some other disease such as duodenal ulcers, gallbladder disease or with adhesions which have contracted and pulled out a sac of the duodenal wall. These secondary sacs are found almost invariably in the first part of the duodenum and on microscopic examination the wall of the sac is found to be of the same thickness as the original and to have the muscularis intact throughout all the sac.

Etiology.—By the use of the word "primary" one implies that there is no known etiology for these sacs, but the remarkably constant location does suggest that there may be an anatomic reason for their presence. The duodenum is supplied by the superior pancreaticoduodenal artery which passes down behind the first part of the duodenum and anastamoses with the inferior pancreaticoduodenal branch of the superior mesenteric artery. This vessel runs along the medial surface of the second portion between the duodenum and the pancreas and along the upper surface of the third and fourth portions. In the embryo these surfaces were the posterior border of the gut and took their later position only with the elongation and the rotation of the duodenum, the blood vessels being carried along as the gut rotated. Branches supply the gut either singly or, as Edwards has found, in pairs, and it is along the course of this pancreaticoduodenal artery that these primary diverticula are found.

If there should be a break in the resistance of the wall where a small nutrient vessel enters and, particularly if there should be an intermittent pressure within the duodenum over a period of years, one can imagine a small protrusion working its way up along this vessel and eventually bulging out through the wall as a diverticulum. It is presumed also that the muscular coat does not fit snugly around the vessel but leaves a gap which is filled in with loose areolar or connective tissue and the sac as it pushes out carries little or no muscular fibers with it. Although this theory has not been proven to the satisfaction of everyone, it does coincide with Drummond's[6] work on the etiology of diverticula in the colon. He was able to demonstrate sections showing progressive stages in the development from the very small depression or deeply seated gland to the protrusion of the mucosa through the wall of the colon, and he showed that they went through a weak place in the wall where a blood vessel entered.

While studying the duodena which he had found to contain a diverticula, Grant injected the vessels of his specimens and found that the vessels supplying the region appeared to bifurcate at the fundus of the sac and the two smaller branches passed down each side of the diverticulum. He felt that the sac started somewhere between these smaller branches and grew out to the bifurcation carrying it along with it as it increased in size. Edwards, in several dissections, found that the nutrient vessels entered the gut in pairs and he demonstrated two small sacs arising from each of a pair of these branches. He felt that the diverticula of the duodenum started in just this manner and grew in size and later fused to form one sac which eventually reached the bifurcation of the larger branch which then lay over the fundus. In a picture of one of Ogders dissections the association of the vessels with the diverticulum is clearly seen, the vessels entering the gut at the base of the sac. In the case which I am reporting there was a regular arcade of small vessels over the fundus and several larger ones entered the wall of the gut near the stoma. Whether these primary diverticula start in a weak area surrounding a vessel or not, it does appear that they are found most frequently in association with the vessels which supply this region.

This theory also presupposes an increase of pressure within the duodenum which gradually forces the sac out through the weak spot. If, however, there is any pressure within the duodenum it cannot be very great nor very constant because the lumen, although obstructed above by the pylorus, is open below. Nevertheless, with each peristaltic wave there must be a positive pressure as each wave passes and a tiny pit in the mucosa might be slowly but surely increased in size, particularly if there were no muscle fibers to counterbalance the pressure from within. In connection with this one must remember that the muscular layer is almost always missing from the fundus of these diverticula and may be absent from the entire sac. The tonus of the muscular layer is necessary to maintain the form of the gut, this tonus being quite distinct from the muscular contractions which propel the contents onward. Anyone who has cut into a piece of intestine will remember how the wound gapes. This is due, of course, to the same muscle tonus which pulls the end of a severed tendon up out of sight in lacerations of the wrist. If a herniation of the mucosa appears in some weak region, it is slowly pushed out between muscle fibers and each increase in size is maintained because the restraint of the muscular coat is missing.

Symptoms.—Undoubtedly there are many patients who have a diverticulum which does not cause any symptoms. Diverticula have been dis-

covered in postmortem examination in patients in whose history there can be found absolutely no suggestion of upper abdominal complaints and the roentgen ray sometimes will reveal one of these sacs in a living patient in whom there is sufficient pathologic condition either in the gallbladder or in the stomach or duodenum to explain all the patient's symptoms. However, if a sac is unable to expel barium within a few hours and, particularly if it is tender on palpation under the fluoroscope, it certainly should be seriously considered as the cause of the patient's symptoms. As Case pointed out in 1920, if the patient has sufficient reason to justify a roentgen ray examination of the gastro-intestinal tract and in the course of this examination only a diverticulum is found, the probability is that the patient's symptoms are due to the diverticulum.

The complaint is usually of upper abdominal pain. Tenderness is usually present in the right upper quadrant, nausea is common and vomiting may be present to such a degree as to suggest pyloric stenosis. Belching is frequent and there is sometimes a feeling of fullness which may or may not be associated with eating. The history of the disease usually goes back over a period of years. The shortest in this series was three months and the longest twenty-four years. There may be long periods in which the patient is free of pain but most patients give a history of having one or two attacks a year with comparative freedom in between.

As has been mentioned before, there are no symptoms which have been found to be typical of the condition and the tentative diagnosis is almost invariably one of gallbladder disease, peptic ulcer, cancer or pancreatic disease. After the diagnosis has been made, some of the symptoms can be recognized as being due to retention of the duodenal contents with subsequent distention of the sac, but the diagnosis is made by the roentgen ray.

Treatment.—When such a sac is discovered, one must remember that some of them do not cause any symptoms whatsoever and until one is certain of his ground he should try to eliminate other causes of upper abdominal distress before undertaking the removal of the diverticulum. While thus being cautious, one also must remember the warning Case has given that when a sac is discovered in a patient who has had enough distress to warrant a roentgen ray investigation, the sac is most likely the cause of the symptoms. Many cases have been reported in the literature of patients who have had other operations such as a cholecystectomy or appendectomy or even a gastro-enterostomy and have obtained no relief until the diverticulum itself had been resected.

Even with the roentgen ray these sacs cannot be found unless some of the barium meal gets into it and outlines the cavity. If there is retention for three or six hours, and particularly if there is tenderness upon pressure and movement of the sac, there can be little doubt that it should be removed. If, however, the patient's symptoms are mild and if the sac appears to empty easily, palliative treatment can be tried safely. This consists of teaching the patient to recline in such a position as to facilitate the emptying of the sac by gravity. The sac has little or no muscle in its wall and so cannot empty of its own accord. With this postural therapy may be included some intestinal antiseptics in the hope that this will prevent an infection of the contents of the sac with subsequent inflammation and rupture into the abdominal cavity. That this can happen is shown by the case operated upon by the late Dr. W. T. Coughlin in 1917. A large diverticulum of the second part of the duodenum was found which had ruptured. The diverticulum was resected and the patient recovered.

In 1930 Ogders was able to find reports of only twenty-three operations, but since then they have been increasing rapidly and the results and the prognosis have been most encouraging. Many of the patients reported have at last received relief from suffering and distress which had extended over a period of years during which time they also had been subjected to various operations. The excellent results obtained and the low mortality would appear to make surgery the treatment of choice.

These herniations appear most frequently in the second portion of the duodenum along the medial border and in close relationship with the pancreatic and bile ducts. They may present themselves to the ventral aspect of this medial border or to the dorsal and they may appear in the center and burrow into the substance of the pancreatic gland. When the sac is anterior, the problem of removing it is relatively simple. There may be some difficulty in recognizing it but there is usually a puckering up of the peritoneum which is noticeably different from the surrounding area. Identification can be made more definite by invaginating a finger into the wall of the duodenum and if a stoma can be felt opposite this irregularity there is no doubt that the diverticulum has been found. When the peritoneum has been freed the sac usually will dilate like a small balloon. After the numerous vessels have been attended to the sac then can be excised and the stump clamped and invaginated or the defect sutured as one would repair any small wound in the intestinal wall.

If the sac lies to the posterior aspect of the duodenum, McLean's[14] method of freeing the right border of the duodenum and turning it over to the left so as to expose the under surface should make it easier to dissect the sac free and avoid injuring either the pancreatic or the common duct. A finger invaginated into the stoma again would make identification and dissection easier.

For a sac which has invaded the substance of the pancreas, McLean, in 1922, opened the duodenum to exclude the possibility of a stone in the ampulla and he was able to invaginate the sac into the lumen of the gut and excise it from within.



Fig. 1. Drawing made after the operation. This diverticulum was found along the anterior margin of the medial border of the second portion of the duodenum. Sometimes they are deeper and may be buried within the head of the pancreas and so cannot be seen until the duodenum is rotated or opened.

The results obtained by excising a diverticulum of the duodenum have been most encouraging. The cases reported in the literature almost invariably have been relieved of symptoms of many years standing. In the St. Louis University Group of Hospitals there were found three other histories of patients who had been operated upon for this condition. In one of these the wall of the sac was so thickened and so adherent to the pancreatic duct that it could not be removed and the patient still complains of his pain. In the other two, and my three cases, the results have been all that one could desire. The great relief which my patients have obtained prompted this study of the literature and the statistics from Firmin Desloge Hospital.

REPORT OF CASE

Mrs. C. P., white female, aged 78, entered Firmin Desloge Hospital complaining of severe pain in the right upper quadrant which had been present for the last three weeks and had been steadily getting worse. She was nauseated and vomited so frequently that even water could not be retained. Vomiting sometimes would relieve her and she tried to induce it. The pain was referred to the lumbar region and was so severe that she sat up in bed and hugged her stomach and rocked back and forth moaning almost continuously. She sat up day and night because the pain was much worse and more constant when she lay down.

She began to have these spells about five years previous to admission to the hospital and she had had one or two each year since. These attacks had been coming more frequently and had been getting more severe. This last one was the worst she had ever had. The pain was started by eating food but she said that there was no particular kind which upset her. She belched frequently and at times after eating she had a feeling of great fullness, "as if her stomach were going to blow up." She had never been jaundiced, had not been constipated nor had she had any diarrhea.

A tentative diagnosis of cholelithiasis, peptic ulcer with pyloric obstruction or possibly cancer was made and a gallbladder visualization and gastrointestinal series were ordered. There was no roentgen ray evidence of pathologic condition in the gallbladder. The esophagus and the stomach were normal, but a diverticulum was found which appeared to be on the anterior aspect of the medial concave surface of the second portion of the duodenum. This sac showed retention of barium after the three and the six hour plate and it was definitely tender to palpation and manipulation while being viewed under the fluoroscope. As no other pathologic condition could be found which might explain this woman's severe symptoms, she was advised that she might obtain relief if the diverticulum were removed. Her suffering must have been severe because she did not hesitate in asking that the operation be done as quickly as possible.

Operation.—Under ether anesthesia an upper right rectus incision was made. No pathologic condition could be found in the stomach or the gallbladder. In the second part of the duodenum about 1½ inches distal to the pylorus and at the anterior margin of the medial border a peculiar puckering of the peritoneum was found. By invaginating a finger into the duodenum a firm ringlike stoma could be felt directly beneath this irregularity

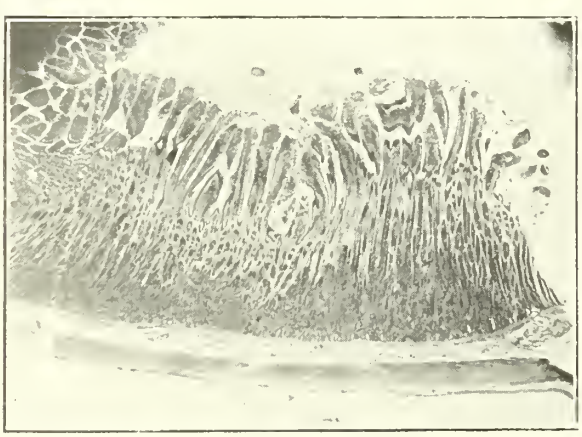


Fig. 2. Photomicrograph of normal duodenal wall showing the mucosa, some Brunner's glands and the muscularis.

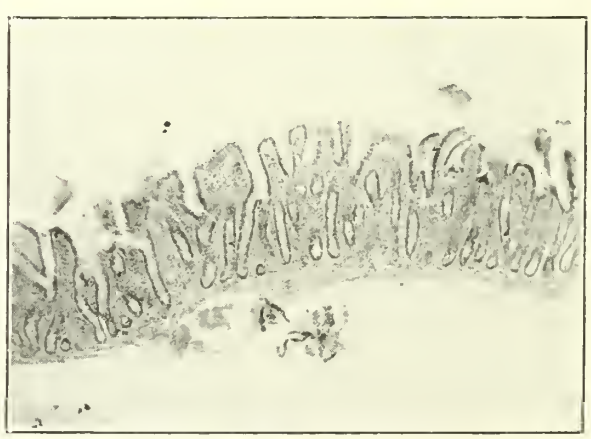


Fig. 3. Photomicrograph of the wall of the diverticulum showing absence of Brunner's glands and muscularis. This is the most common finding in such diverticula.

and although the stoma was too small to admit the finger it was felt that the diverticulum had been found. Beneath the peritoneum and over the sac lay a dense network of small blood vessels from which several large branches could be seen passing into the gut near the mouth of the sac. As soon as the peritoneal folds and the blood vessels had been dissected free the sac ballooned out and definitely identified itself. The sac was clamped and cut free from the duodenum and the edges of the small opening were brought together with regular Lembert sutures. The area was reperitonealized and the abdomen was closed in layers.

Pathologic Report.—The specimen consisted of a thin walled sac about 1½ by 1 cm. The mucosa was normal except for the absence of Brunner's glands. The muscularis was missing from the entire sac. The serosa was also missing, because the sac had had a retroperitoneal origin and had pushed up to the peritoneum which had been dissected off at the operation.

The patient made a slow but uneventful recovery. For the first two days she received glucose and was also given CO_2 and O_2 for a few minutes every hour and she was propped up in bed and turned frequently. From the first day it was evident the operation had been successful in giving her relief. She was soon eating and was able to do so without any distress. She was discharged as cured on her twentieth postoperative day and has been well since except for one time when she became constipated and began to belch again. She had some feeling of fullness but this was entirely relieved by several injections of prostigmin.

This case is quite representative of the other two patients and the result obtained in these as well as the reports of other authors has convinced me that an operation should be seriously considered if, (1) a diverticulum be found in a patient who is suffering with pain in the right upper quadrant, (2) if the diverticulum retains barium, and (3) if the diverticulum is tender to pressure while being visualized under the fluoroscope.

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VOLVULUS OF THE STOMACH

REPORT OF A CASE

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Etymologically, the term volvulus, being quite descriptive, is a fortunate one and much better than some others in use for outlining the condition to be discussed.

There are numerous reports on misplaced stomachs associated with other abnormalities such as diaphragmatic hernia, but the literature on volvulus of the stomach without companion changes is not volumnious and there are only a few case reports. Furthermore, some authors consider all such cases to be congenital.

In 1938 Dr. Arthur Singleton[1] presented the subject of "Chronic Gastric Volvulus." He reviewed the literature and reported three cases of his own. He concluded that the condition was rare, could be acquired and suggested a classification which is satisfactory. It is given here in an abbreviated form:

1. a. Organo-axial rotation. b. Mesenteric axial rotation.
2. a. Total. b. Partial.
3. a. Anterior. b. Posterior.
4. a. Secondary. b. Idiopathic.
5. a. Acute. b. Chronic.

In 1926 Drs. D. A. and B. A. Rhinehart[2] presented a paper on "Congenital Abnormalities of the Stomach With a Report of a Rare Case." In February 1936 Dr. D. A. Rhinehart[3] presented a paper on "Concerning Stomachs That Are Upside Down." It is interesting to note in these cases that the patient who had no diaphragmatic hernia presented certain other abnormalities identical with my case: namely, urticaria, cholelithiasis and an enlarged spleen which later became lost.

In 1932 Professor S. Azmy and Dr. Ahmed Marey[4] reported two cases of volvulus of the stomach. They believed that the gas distended rising transverse colon was responsible by carrying the greater curvature of the stomach upward and forward by reason of a long gastrocolic omentum.

This case is reported because the condition is rare and evidence tends to show that it might have been acquired.

REPORT OF CASE

Case 1. M. H., female, aged 64, housewife, consulted me on May 25, 1938. She complained of itching and swollen areas over all of her body. She presented typical urticarial wheals on the face, arms, hands, legs and torso. She stated that sometimes the pharynx was involved and that then there was dyspnea.

Onset of her present illness was three months previous to consultation. The attacks had been intermittent, the intervals and the periods of duration being irregular. For the four previous years the attacks had begun in June and disappeared spontaneously in three or four weeks, but this year they began in February and persisted to the time of consultation. She had experi-

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Fig. 1. A. A saccular structure to the left of the spine reveals a gas bubble between the diaphragm and the fluid level. This is the stomach sinus, while the fornix is the dependent portion. At the angle formed by the junction of gas bubble and fluid level medially the duodenum with unusual pattern appears and is directed obliquely downward and mediolaterally. B. The esophagus is seen entering the fornix at the dependent portion of the shadow. Rugae of the corpus are seen between the fluid level in the fornix below and gas bubble in the sinus above. The stomach is entirely on the left side of the spine. The pylorus is atypical in contour and presents a point of torsion. On this film gall stones are seen in the right upper quadrant and in the left lower quadrant a worm-like shadow portrays sclerosed splenic vessels.

mented with various foods without definite results. She had lost six and a half pounds recently on a restricted diet.

Past History.—The patient had never been well but had consulted a physician rarely. Forty-two years previous to consultation she had had pneumonia. Two years later she had had jaundice which lasted two months. Eleven years previous to consultation she had had a tonsillectomy. She had had a dozen or more attacks of gall stone colic in the last four years. She had never had typhoid fever or malaria. In childhood she had had a large palpable spleen. From childhood until two years prior to my seeing the patient she had been subject to attacks of right hemicrania associated with vomiting. Hemorrhoidectomy was performed four years prior to the time I saw the patient.

Family History.—One son had been suffering from hay fever for six years. There were no other points of interest.

Habits.—She followed regular meal and sleeping hours. She masticated her food well and took coffee and tea twice daily. She partook of a pretty well balanced diet and relished fried foods. She drank only two or three glasses of water a day, used no tobacco or alcohol. She had always worked hard. After her husband died, she raised and educated four children which required her to work in a store by day and do her housework at night. She had omitted meat, sugar, coffee, eggs and milk in an endeavor to relieve urticaria.

Digestive System.—Appetite was good. Ordinarily there was no bloating, belching, nausea or vomiting. Bowels required medicinal aid (milk of magnesia) twice a week. Stools were scybalous unless influenced. After hemorrhoidectomy stools were frequently flat and small in caliber. Teeth were in good condition, tongue was clean and pharynx in good condition. Halitosis was present. Abdomen was below level, normal in contour and soft. Liver, spleen and kidneys were not palpable. There were no tender areas except for definite tenderness to the left of and below the umbilicus. There were no muscle guard, masses, hernias or visible peristaltic waves.

Respiratory System.—There was no cough or dyspnea. On percussion and auscultation only normal sounds were heard.

Circulatory System.—Patient was never heart conscious. Apex was in the fifth left interspace and rhythm was regular. There were no murmurs or abnormal accentuations. Arteries were soft, pulse was 84 and blood pressure 130/80.

Nervous System.—At times the patient was nervous and excited. During such periods her back, and points to the midthoracic region, was painful. For many years she had slept poorly, never sleeping more than one half of the night. She had headache rarely in the last two years. Pupils were equal, round, reacted to light and accommodation. Tendon reflexes were alike and normal on both sides. There were no paralyses, ataxia or incoordination; no loss of sphincter control.

Genito-Urinary System.—First menses were at 16. Periods were regular every twenty-eight days for four days until in later years when the interval was twenty-one days. Flow was moderate in amount, color good. There was pain at times. Last menses were at 44. Weakness, nervousness and dyspnea were associated with a gradual menopause. She was married for fifteen years during which time there were four pregnancies and five children, the third pregnancy having yielded twin boys, one of whom lived only a month. All other children were living and well. There had been no sepsis and no miscarriages.

The first labor was a difficult one and the physician, in attempting to aid, made great pressure on the abdomen. In the course of this procedure the large spleen which had been fixed heretofore "was torn loose" and for a number of years thereafter the organ could be

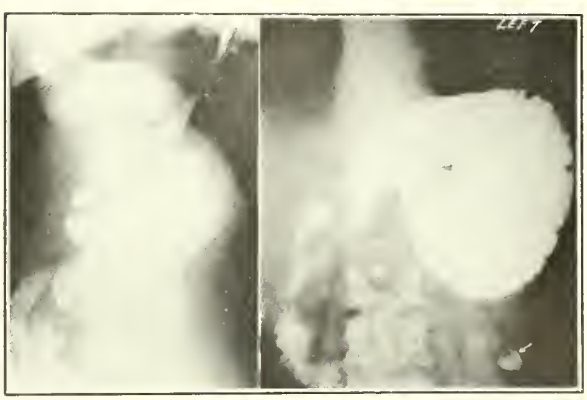


Fig. 2. A. A lateral view vividly indicates the reversed position of fornix and sinus with the esophagus pointing the position of the fornix. Again the gas bubble is in the sinus, displaced upward. B. Another illustration of the esophagus entering a low fornix in relation to the sinus above. In all films an intact diaphragm is shown. The sclerotic splenic vessels are again prominent.

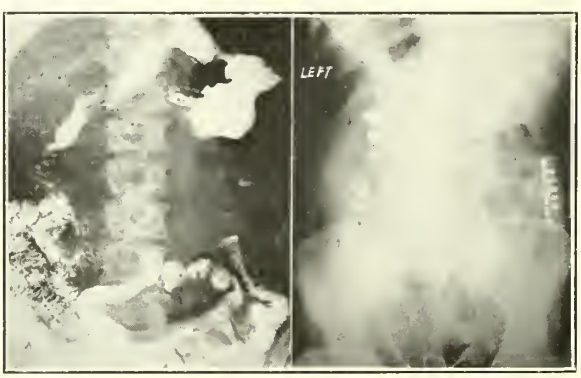


Fig. 3. Six hour film indicates torsion points of axial rotation by constrictions which appear to lie in the corpus and in the pyloric end. Splenic vessels are plain. B. Pyelograms are offered to show that the worm-like shadows are not related to the kidney. The kidney shadow is partly superimposed on the spleen to and from which splenic vessels are seen to lead. Arrows point to splenic borders.

pushed around in her abdomen. Gradually, in the course of years, she could no longer feel the spleen. The episode of rendering the spleen movable caused severe pain lasting several days but no great shock and no vomiting or fever. Perineum was relaxed. Vaginal mucosa was normal. Uterus was small, in normal anteversion and mobility was free and painless. Adnexa were normal. She urinated three or four times daily; sometimes twice at night. Urine was clear, specific gravity 1020, acid, no albumin, no sugar. On two occasions there was a slight reduction of Fehling's solution. Microscopically a few white blood cells were present.

Bones and Joints.—Occasionally she had darting pains in fingers, toes, sides and ears. No joints were swollen, tender or restricted in motion.

Glands.—Cervical, axillary, epitrochlear and inguinal glands were not enlarged.

Blood.—Hemoglobin was 72 per cent. Red cell count was 4,120,000. No abnormal cells were observed. White cell count was 10,000; mononuclears, 4 per cent; lymphocytes, 30 per cent; segments, 63 per cent, eosinophiles 3 per cent. Kahn test was negative.

General Condition.—Patient was well nourished, active, and vivacious, but nervous, jumpy and hyposthenic. Temperature was 98.6 F. Weight was 124½ pounds (greatest weight was 138 pounds).

Skin.—Aside from some twenty-five urticarial wheals there were no eruptions and no edema.

Special Senses.—Patient saw well with glasses. For years she had been hard of hearing in both ears. Her otologist reported that her affliction was "a chronic catarrhal deafness."

Roentgen Examination (Fluoroscopic).—Chest: Apices lighted up well and lung fields were clear. Hili were of moderate density. Diaphragm was smooth with no break in continuity, costo-phrenic angles sharp and clear, excursions full and regular. Heart shadow was in the left chest, lying obliquely, normal in size; action was free and regular. Aorta was normal. Digestive system: Small meal showed deglutition normal, entrance free, canalization easy but peculiar. Rugae could not be traced satisfactorily and pylorus could not be found. Full meal revealed a saccular structure whose contour was unlike a normal stomach. Mobility was free and painless and no peristalsis was noted. There was no filling defect. On palpation the pyloric opening seemed to be behind and above the saccular atypical stomach shadow but no typical cap or ring could be elicited. The duodenum filled on pressure and presented an abnormal pattern with unusual course obliquely downward and to the right. 24 Hour: No bowel movement had occurred. The meal was distributed between the cecum and middescending colon largely in sharply incised masses. A small bit of appendix was showing. Mobility of bowel was free on respiration and palpation and only over the descending colon was there any pain, the cause of which was not identified at that time. Later it was learned that this was due to a misplaced spleen with sclerotic vessels.

During several postmortem examinations the following observations were made: Leaving the gastrosplenic ligament intact and freeing the spleen from all other attachments, the latter organ was made mobile. If traction on the spleen was made downward, downward and forward or downward and medially the corpus and fornix of the stomach came along for quite some distance and the esophagus became elongated. During this process the stomach became relaxed at the incisura and the pylorus, with the mobile first portion of the duodenum, was inclined to tilt upward and then fold medially, especially in front of the corpus. If one pictures a large spleen extensively mobile over a period of years, it can be conceived that the greater curvature of the stomach may be displaced and tipped upward and, in the course of time and insults, be so held. By this process the condition presented in this case might be brought about.

If the gastrocolic omentum was fenestrated and splenic traction continued, the tail of the pancreas and splenic vessels were seen to follow the direction of the pull to a surprising degree. That the effect of tugging in various directions by a mobile spleen on splenic vessels over a long period of time would be a pronounced sclerosis is understandable and here illustrated. Phlebosclerosis, of course, is also an accompaniment of splenic anemia.

The large spleen was evidently that of Banti's disease since it is the one disease with splenomegaly of long duration which is curable by splenectomy. In this instance it is assumed that the effect on the splenic vessels caused splenic atrophy. (Did the same thing happen in Dr. Rhinehart's[2] case?)

The volvulus quite evidently makes traction on the esophagus which may well account for the patient's back pain on occasion.

A case of volvulus of the stomach of rare type is presented and the theory advanced that it may have been acquired. Gall stones and a spleen fixed in a misplaced position possessing sclerosed blood vessels are associated conditions.

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SPECIAL ARTICLE

FIFTY YEARS AGO

SURGERY AT THE TIME THE ST. LOUIS SURGICAL SOCIETY WAS FOUNDED

ROBERT E. SCHLUETER, M.D.
ST. LOUIS

There were only two American surgical periodicals fifty years ago, *The Annals of Surgery* of Lewis S. Pilcher and *The American Journal of Surgery* founded by Emory Lanphear, then in Kansas City. He moved to St. Louis a few years later but did not take the journal to St. Lou's.

Elisha Hall Gregory was the highly respected head of the St. Louis surgical profession and was the first president of the St. Louis Surgical Society. His inaugural address was republished by the society two years ago. Gregory was getting along in years and N. B. Carson and P. Y. Tupper were gradually replacing him. Carson was a courageous surgeon who seemed to enjoy performing heroic radical operations, while Tupper was conservative.

In 1892 Pinckney French was organizing the Barnes Medical College and was professor of surgery but soon occupied himself with other ventures and finally went to California where he practiced for many years. H. C. Dalton was superintendent of the City Hospital but was succeeded by Heine Marks during the year. This position was then the means of training the incumbent in sur-

Presented at the annual meeting of the St. Louis Surgical Society, January 14, 1942.

gery, so that most of these superintendents emerged as surgeons of standing. During 1890, 1891 and 1892 A. V. L. Brokaw published eleven articles on surgical and gynecologic subjects. In the latter year he was only 28 years of age. He died at 43.

Bassini's operation had been reported in 1889 and was a great advance in the treatment of inguinal hernia. In 1892 Welch identified the gas bacillus and Von Jaksch signalized the value of leukocytosis which had been recognized by Rudolph Virchow many years earlier.

The science of bacteriology had been established firmly by Louis Pasteur, Robert Koch, Edwin Klebs, Friedrich Loeffler and others, but as yet was not interpreted properly by these or other scientists for its effective and direct application in surgical procedures. It took several decades, with the inauguration of a long series of seemingly minor, but now known to be important, details. Even the late Lord Lister then was known only as Sir Joseph Lister and was wholly ignorant of the future results of his acceptance of the fundamental truths discovered by Louis Pasteur.

The ordinary family antiseptic of that day was tincture of arnica, made of 10 per cent arnica flowers in dilute (50 per cent) alcohol. Only the accidental contamination by an irritating insect in these blossoms resulted in the discard of that decoction and led to the conclusion that all its antiseptic healing properties were due to its diluted alcoholic content. So this product of the pharmacist's art has almost disappeared from the commercial drug market. The surgical profession was divided on the virtues of solutions of bichloride of mercury (1-10,000 to 1,000) for various purposes, phenol (5 per cent being the favorite percentage), iodoform (on gauze and as a dusting powder) and mixed cyanides of mercury and zinc. Yet, there was little attention paid to the usual means by which a wound might be infected with pathogenic bacteria, either when it was accidentally inflicted or on the operating room table. Every surgeon considered himself a "king who could do no wrong" in the operating room. Therefore, the operating surgeons were the last persons to apply the same rules to their conduct which were earlier applied to that of their assisting personnel. Only when the operators reduced themselves to the same personal level of their associates and assistants were the beginnings of modern aseptic surgery near at hand.

Rubber gloves were invented by Wm. S. Halsted in 1889, but operating surgeons were reluctant in using them. Even during the first decade of the twentieth century Robert T. Morris of New York spoke of "The hand of iron in the glove of rubber." This is but one example of the many efforts of surgeons to resist the general adoption of the effective means of preventing direct operative infection.

Leeching, cupping and, occasionally, venesection were still practiced by barbers and some surgeons, in some instances under the direction of a physician or surgeon.

Although Sir Spencer Wells of England and Jules Pean of France had long before devised hemostatic forceps similar to those which are now in use, during the 1890's almost all surgeons used artery forceps built like toothed heavy anatomic dissecting forceps with a slide lock. One of the more popular was the stub-nosed instrument invented by Ernst von Bergmann of Berlin. This lock was manipulated with the thumb like the slide-switch on a modern electric flashlight. With the introduction of rubber gloves, they were so often caught in the slide-lock and torn that the old fashioned hemostats went out of use. Marine sponges were in general use among surgeons, usually moistened in bichloride of mercury solution.

In 1892 every surgeon had quite an assortment of knives in his operating kit. Some of them still had handles of wood or ivory. There were scalpels of different sizes, sharp pointed and blunt end, straight and curved bistouries, sharp pointed and blunt tenotomes, even one or two herniotomy knives with heavy blunt ends for nicking the hard fibrous tissue hung around the neck of a strangulated or incarcerated hernia. Now, after the disappearing generation has been able to do splendid work with only scalpels, human ingenuity, according to the advertisements in surgical journals, has devised another fantastic assortment of knives not included in the foregoing category.

Roentgenograms, antitoxins and vaccines, routine blood counts, intravenous and other parenteral solutions, as well as Wassermann tests and other reactions came in subsequent years. The city hospital had interns but few of them and the private hospitals had none. A young physician living or practicing near a hospital sometimes served as a kind of extern.

In 1892 the popular anesthetic almost everywhere, except in New England and some few spots throughout the country, was chloroform. "Sulphuric" ether had first been reported from Boston in 1846, so that region naturally leaned toward its use. Chloroform, a comfortable inhalation anesthetic, having been discovered by James Y. Simpson, a gynecologist and obstetrician of Edinburgh, was adhered to by the British and the gynecologists as long as it was possible. Then again, it is not as inflammable as ether and could be used in the presence of the fish-tail gas lights and the sterilizer gas flames of that day. It was furthermore often possible for an accoucheur to administer this anesthetic to the stage of unconsciousness and then deliver his patient without discomfort to her. It must be remembered that daylight was usually depended upon for proper operative room illumination. None of the several kinds of electric lights were yet reliable and practical enough for general acceptance and adaptation. Some few operators used ACE mixture, composed of equal parts of alcohol, chloroform and ether, with variable success. A medical student or young physician was usually entrusted with the administration of the anesthetic and, every

now and then, an operation was interrupted by the application of artificial respiration to resuscitate a patient who had stopped breathing. With chloroform the margin between anesthesia and respiratory inhibition is rather narrow. Cocaine hydrochloride was the only local anesthesia used, Carl Ludwig Schleich of Germany having introduced his infiltration anesthesia in 1890, and cases of poisoning were not uncommon.

Charles McBurney of Roxbury, Massachusetts, but later of New York, had described his "point" as the location of tenderness in appendicitis in 1889. It made the diagnosis of the disease much easier but had little influence on its treatment in St. Louis except that A. C. Bernays strongly advocated early operation.

In 1892 W. S. Halsted, of Baltimore, had recently begun doing his radical operation for cancer of the breast but did not give it proper publicity until 1894, so few if any other surgeons performed this operation at that time. Wm. B. Coley, of New York, had introduced his toxins of micrococcus erysipelatis and bacillus prodigiosus and everybody was trying this mixture for malignant disease. W. W. Keen, of Philadelphia, had introduced linear craniotomy for microcephalus and many surgeons thought it gave the brain a chance to grow; Herman Tuholske believed it for more than a few years. In 1891 H. I. Quincke, of Germany, introduced lumbar puncture but its value was little undestood. Witzel, of Germany, performed his operation for gastrostomy and some surgeons tried it. Bier recommended his active hyperemia and it was thought to be of great value by some surgeons.

Few general surgeons or surgical specialists, even among the full professors, limited their practice to that specialty. General surgery included everything which it still embraces and gynecology, urology, facial and plastic work, skull and neurologic operations and fractures.

Perhaps the greatest contrast of that day and today are the "tents" which were small pencils about 2½ inches long, straight or curved, cylindrical or tapered, from ⅛ inch in diameter throughout its length to a conical plug with a ⅝ inch base. These "tents" were composed variously of tupelo wood, sea-tangle (Laminaria), dry compressed marine sponge and one or two other materials. They were used for dilating the cervix uteri and the orifices of sinuses and fistulae. By absorbing the moisture from normal or abnormal secretions these "tents" expanded and enlarged any canal wherein they were placed. They were undoubtedly the means by which criminal abortion was often accomplished, with or without professional medical assistance.

Another operative gynecologic procedure of that time, which demands attention now, is hysterectomy, partial or complete. Subtotal hysterectomy was accomplished with or without the ligation of the ovarian vessels in the broad ligaments by the delivery of the enlarged corpus uteri through a suprapubic incision, its lower part was constricted by an "ecraseur," either of the type of Lawson Tait or that of Koeberle. Both of these devises absolutely controlled the bleeding from the corpus and cervix uteri when the "stump" was held up by two metal skewers and all tissue above these appliances was cut away. After from three to five days this "hardware" could be removed without the risk of any secondary hemorrhage. However, the postoperative mortality of this operation was more than 30 per cent while a total hysterectomy for malignant disease by the ligation of vessels and other pedicles with heavy braided silk and twisted silver wire was practically 100 per cent. The technic of these operations was not good but the failure to protect the patients against infection was mostly responsible for the high mortality. Vaginal hysterectomy was followed by a mortality of something less than 30 per cent.

Submucous fibroids and those in the cervix were treated by morcellation (i. e., biting or tearing it away piecemeal). Almost any kind of suitable instrument was used, but Emmet had invented a metal thimble with a strong sharp-pronged fingernail extension with which a tumor could be clawed off in small particles or strips.

The leading authority in gynecology was Thomas Addis Emmet, Jr., of New York, and his "butterfly operation" for lacerated perineum was the approved practice. The sphincters ani were sometimes sutured in complete lacerations but there was no effort to give pelvic support by sewing the two lateral levatores ani together.

Bilateral oophorectomy was done for uterine fibroids and sometimes for the dysmenorrhea of adolescence. It was definitely distressing during the next two or three decades occasionally to see a woman in middle age whose secondary sexual characteristics were never developed because of early artificially produced amenorrhea. These women were often neurotics and sometimes chronic psychiatric patients. Among the small number of St. Louis doctors who limited their practices to gynecology were George J. Engelmann, Walter B. Dorsett, Frank A. Glasgow and F. C. Ameiss.

The outstanding genito-urinary specialists were John P. Bryson, E. C. Burnett and Bransford Lewis. Bryson later drifted into general surgery but Lewis, who in that year of 1892 began the editing and publication of the *Medical Fortnightly*, deserves credit for expending much of his energy during the prime of his life in perfecting the cystoscope. The latter effort resulted in a protracted controversy but when a cold filament electric light bulb was invented, the cystoscope became a practical and serviceable instrument. Bransford Lewis finally attained a place among medical immortals with his two volume book on "The History of Urology."

In 1892, the presence of a vesical calculus was suspected by the subjective symptoms and then verified by the passing of a "metallic sound," with or without a telephonic attachment, by which a tinkling might be felt or heard when the stone and

the instrument came in sudden contact. (All this happened two or three years before the discovery of roentgen rays and more than a decade before that discovery was applied as an aid in the diagnosis of stones in the urinary passages.) With no means at hand to locate concretions in the ureters or renal pelvis, calculi ordinarily were not removed unless found by mechanical methods in the urinary bladder or when they accompanied an enlarged kidney in a nephrectomy.

The operation of choice was a lateral perineal cystotomy, entering the bladder by an incision by way of the bulbous and membranous urethras, and then through the prostate gland. The stone, or stones, could then be seized by broad concave forceps, with small tooth-like projections inside, and readily removed from their location in the dependent trigone area of the bladder. Suprapublic cystotomy, for some reason or another, was followed by a much higher mortality rate than is the experience of more recent years.

Prostatectomy was seldom done, as the improved suprapubic operation was introduced by Sir P. J. Freyer of London in 1901 and the perineal approach by Hugh H. Young of Baltimore in 1903; but the unfortunate men with prostatic conditions sometimes were subjected to castration for the same reason that bilateral oophorectomy was done for uterine fibroids. The prostate is the male counterpart of the female uterus and therefore was subject to the same treatment when it was enlarged.

Urethral strictures were common, perhaps because silver nitrate solution was then popular in treating gonorrhea. Thus external urethrotomy was a frequent operation.

Stricture of the esophagus was also more often seen because children accidentally drank concentrated lye which was used in scrubbing wooden floors and stairs.

Emil Behring, of Germany, did not bring out his diphtheria antitoxin until 1894 so diphtheria was essentially a surgical disease because the laryngeal form, sometimes called membranous croup and once thought to be a separate pathologic entity, often required a tracheotomy. In 1891 Dr. C. H. Powell, of St. Louis, reported a case of diphtheria in which two tracheotomies were performed during the same month, an apparent remission of the disease having occurred. The remarkable feature was that this patient actually recovered. Every surgeon and many physicians had the intubation set invented by Joseph O'Dwyer, of New York, on hand and had frequent occasion to use it in an effort to prevent the need of a tracheotomy.

All surgical clinics had cases of tubercular cervical glands on hand upon which one, or more, more or less thorough operations had been performed.

Surgical research in St. Louis was confined mainly to the stomach and intestines. A. V. L. Brokaw and Waldo Briggs fairly monopolized the subject in the St. Louis medical journals and Brokaw invented an intestinal clamp to facilitate suturing. It was shaped like a large thick, rubber covered hairpin about 5 inches long. With one arm of the instrument the mesentery was punctured and the ends were tied together with a piece of silk string. Waldo Briggs reported a complicated intestinal suture after many experimental operations on dogs. Francis Reder had been practicing in Brookfield but had recently moved to Hannibal. He received two prizes in 1891 for as many original surgical papers. One of these recommended a rubber bulb as an aid in intestinal resection and anastomosis. R. H. M. Dawbarn, of New York, used plates of raw potato, Robert Abbe of New York used catgut rings for suture of the gut in 1892 and John B. Murphy's "buttons" came out during the same year. In 1891 Tuholske injured the urinary bladder in performing hysterectomy and made no effort at suturing it. It was not stated whether or not it finally healed. In the same year Brokaw had a fecal fistula following a hysterectomy with Koeberle's clamp. He found consolation in the fact that both Lawson Tait, of London, and Joseph Price, of Philadelphia, had perforated the bowels in 5 per cent of their pelvic operations. During the same year Brokaw also opened an ovarian cyst, sewed the edges to the abdominal wall and packed the cavity with bichloride gauze. This operation was properly called "marsupialization." John H. McIntyre, of St. Louis, amputated the cervix uteri for cancer and, after protecting the vagina with a large speculum, cauterized the uterus with hot irons after the method of Angus McDonald, of Edinburgh, until only a mere shell of that organ remained. Aaron J. Steele was the only orthopedic surgeon in St. Louis who confined his practice to that specialty, which, according to his own definition, was limited to joint diseases and bone deformities.

From this rather brief report it is evident that in 1891 and 1892 surgery, not only in St. Louis but throughout this and other countries, was rather primitive, even when the courageous pioneer work of a few intrepid leaders is considered. It is apparent that there has been more progress in surgery during the last half century than in all the previous three thousand years of medical history. Whatever else has contributed to this progress, it was principally due to the ability to prevent infection.

Metropolitan Building.

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MAY, 1942

EDITORIALS

THE KANSAS CITY ANNUAL SESSION

The Eighty-Fifth Annual Session of the Missouri State Medical Association will convene in Kansas City, April 27, 28 and 29, 1942. The Association is meeting at a time when the profession has many problems before it and when a great deal of value can be obtained from discussion of these problems. It is hoped that every member who possibly can will take advantage of this opportunity, not only to gain from the discussions by others but to add to them that others may profit.

The Committee on Scientific Work has prepared a program that will benefit the physician who will continue his work at home and the physician who will soon enter military service. Fourteen guest speakers, most of whom will present two addresses each, will present subjects covering many fields of medicine and several members of the Association will give presentations of value. The program appears on page 147.

The Jackson County Medical Society is known for its hospitality from previous sessions in that city and the session promises to be an enjoyable one as well as a profitable one.

COMMITTEE ON DRUGS AND MEDICAL SUPPLIES CREATED

A committee to consider and advise on problems relating to available supplies of various drugs and medical materials, means of conserving such materials, of substituting for them and of increasing production as the situation may require, has been appointed by the Division of Medical Sciences of the National Research Council. Each of the federal agencies concerned has been asked to designate a liaison representative to sit constantly with the committee. An editorial in the April 11 issue of the *Journal of the American Medical Association* containing the announcement follows:

"Some of the most complicated and difficult questions confronting various agencies concerned with the most efficient conduct of the war effort have been those concerned with making available to all war agencies proper amounts of essential drugs, chemicals and materials used in medical supplies and at the same time meeting essential civilian needs. Innumerable professional and commercial interests have been involved in these problems. As the problems have arisen, various agencies in the federal government have been concerned with various aspects of these questions, so that correlation and coordination have been exceedingly difficult. Recently a preliminary conference was held by the Division of Medical Sciences of the National Research Council, to which a number of representatives of various agencies were called. A second conference, growing naturally from the first, was held in Washington April 3, at which definite action was taken leading to the establishment of a central committee to give consideration to each of the problems as they arise and thus to be able to advise all agencies as to basic facts necessary for the making of competent decisions.

"The second conference was called largely as a result of a request received from Mr. J. S. Knowlson, director of the Division of Industry Operation of the War Production Board, who asked for the compilation of a list of drugs now scarce, an estimate as to scarce drugs essential to the national health, and the uses to which such drugs might be applied in order of their importance. It was recognized also that conditions change from day to day and certainly from month to month, so that a continuing body might be necessary and available for constant consultation.

"In the conference called by the Division of Medical Sciences, representatives were present not only from the War Production Board, the Office of Price Administration, the Office of Defense Health and Welfare, the Office of Civilian Defense, the Federal Trade Commission, the Division of Medical Sciences of the National Research Council, the Army and Navy medical departments and the Office of Scientific Research and Development but also from the United States Pharmacopeia, the National Formulary, the American Drug Manufacturers Association and the American Medical Association. This conference adopted a motion reading:

"That it be recommended to the Division of Medical Sciences of the National Research Council that a representative committee be established to consider and advise on problems of drugs and medical supplies and on their distribution; that this committee include liaison representatives from all federal agencies now concerned with this subject; that the committee consider all problems related to the supply of essential drugs and medical supplies with a view to conservation, increased production or substitution and with a view toward coordination and correlation of effort for efficiency in the maintenance of the public health and satisfaction of military needs.

"Subsequent to receipt of this action, the chairman of the Division of Medical Sciences, Dr. Lewis H. Weed, appointed a committee and requested each of the federal agencies concerned to designate

a liaison representative who will sit constantly with the committee appointed.

"The committee proposes to establish subcommittees familiar with the essential information that will be required regarding available supplies of various drugs and medical materials and the means of conserving such materials, of substituting for them and of increasing production as the needs arise."

NEWS NOTES

Dr. Willard Bartlett, Sr., St. Louis, was the guest of the Escambia County (Florida) Medical Society at Pensacola, Florida, on March 10 and spoke on "A Personal Viewpoint of Thyrotoxicosis, Its Diagnosis and Treatment."

Dr. Richard L. Sutton, Jr., Kansas City, addressed the Osage County (Oklahoma) Medical Society at Pawhuska, Oklahoma, on March 11, on "Contact Dermatitis and Its Complications" and "Acne and Its Treatment."

Beginning with the June issue, the *Annals of Surgery,* will appear simultaneously in Spanish. The journal is published in this country by the J. B. Lippincott Company will be published in Buenos Aires by the Guillermo Kraft Company.

Since 1928, when a joint resolution of the Congress authorized and requested the President to do so, May 1 has been set aside as Child Health Day. In proclaiming May 1, 1942, as Child Health Day, President Roosevelt asks that every effort be exerted to the end that all children more than 9 months of age be immunized against diphtheria and smallpox by May 1, Child Health Day.

Three prizes were won by auxiliaries in Missouri in the *Hygeia* subscription contest conducted by the American Medical Association from September 1, 1941, to January 31, 1942. In auxiliaries having memberships between one and thirteen, the Perry County Medical Society Auxiliary won first prize and the Cass County Medical Society Auxiliary won second prize. In auxiliaries having memberships between forty-three and six hundred, the Buchanan County Medical Society Auxiliary won second prize.

The National Sojourners, an organization composed of past and present officers of the armed forces who are also members of the Masonic fraternity, will meet in St. Louis May 21, 22 and 23, with headquarters at the Statler Hotel. Delegates from the entire United States and Hawaii are expected to attend. Several officials of the Army, Navy and Marine Corps will be present at the session. There are chapters of the organization in St. Louis, Kansas City and Fort Leonard Wood. Physicians who are eligible are invited to obtain application blanks from the secretary of the St. Louis chapter, Lt. William C. Hilmer, 1627 Locust Street, St. Louis, or become members at the convention.

DEATHS

Wolf, Isadore, J., M.D., Kansas City, graduate of Ludwig-Maximilians-Universitat Medizinische Fakultat, Munchen, Bavaria, 1887; Professor Emeritus of Medicine, University of Kansas School of Medicine; honor member of the Jackson County Medical Society; aged 77; died December 17, 1941.

Austin, Charles S., M.D., Carrollton, graduate of the Missouri Medical College, 1887; member of the Carroll County Medical Society; aged 79; died December 18, 1941.

Jacobs, Max W., M.D., St. Louis, graduate of Washington University School of Medicine, 1905; member of the American Board of Ophthalmology; member of the St. Louis Medical Society; Assistant Professor of Clinical Ophthalmology, Washington University School of Medicine; aged 62; died January 9.

Banks, Henry L., M.D., Hannibal, graduate of Washington University School of Medicine, 1890; honor member of the Marion-Ralls County Medical Society; aged 78; died January 10.

Pierce, Lincoln J., M.D., Brookfield, graduate of the National University of Arts and Sciences, 1913; member of the Linn County Medical Society; aged 57; died January 22.

Crump, Archileus, M.D., Broseley, graduate of University of Nashville Medical Department, 1897; member of the Butler County Medical Society; aged 68; died January 30.

Woolsey, Ross A., M.D., St. Louis, graduate of the St. Louis University School of Medicine, 1912; member of the St. Louis Medical Society; member American Board of Surgery; Chief Surgeon of the Frisco Employees' Hospital Association since 1920; former Treasurer of the St. Louis Medical Society; former Treasurer of the Missouri State Medical Association; President of the Missouri State Medical Association in 1936; aged 65; died in an automobile accident March 24.

ORGANIZATION ACTIVITIES

BUDGET FOR 1942

Salaries (Office and Journal)	$12,750.00
Printing of The Journal	7,200.00
Public Relations	2,000.00
Defense	1,000.00
Postage	1,100.00
Postgraduate Instruction	1,000.00
Printing and Stationery	700.00
Traveling Expense of Executive Secretary	1,100.00
Telephone and Telegraph	600.00
Rent of Office and Light	1,100.00
Meetings:	5,000.00
Annual Session	
Council and Councilors Expenses	
Committee Meetings and Conferences	
Delegates to A. M. A.	
General Expense and Miscellaneous	700.00
	$34,250.00

MISSOURI STATE MEDICAL ASSOCIATION

Kansas City, April 27, 28, 29, 1942

CLINIC

Monday, April 27, 1942—10:00 a. m.—Little Theater, Municipal Auditorium

Victor B. Buhler, M.D., and Ferdinand C. Helwig, M.D., Kansas City, Presiding

10:00 a. m. Medical Pathologic Conference.

11:00 a. m. Surgical Pathologic Conference.

MATERNAL WELFARE COMMITTEE

Annual Meeting

Monday, April 27, 1942—12:00 noon—Ballroom, Hotel President

W. H. Breuer, M.D., St. James, Chairman, Presiding

Selected Case Reports of Maternal Deaths.

Critique of Reports of Maternal Deaths
—Willard R. Cooke, M.D., Galveston

GENERAL MEETING

Monday, April 27, 1942—2:30 p. m., Little Theater, Municipal Auditorium

2:30 p. m. Faith, Hope and Cure-Alls
—K. W. Brimmer, M.D., Washington



In the matter of "cure-alls" the medical profession and the United States Food and Drug Administration have many common public health problems. Within the limitations of the Federal Food, Drug, and Cosmetic Act of 1938 and the limitations of its facilities and personnel, the Food and Drug Administration endeavors to mitigate the misguided faith and the unfounded hopes created by false and misleading claims of illegal labeling of drugs and devices. These common interests and the function and work of the Food and Drug Administration in connection with these numerous drugs and devices will be discussed and how the medical profession may best cooperate and participate in this work will be explained.

3:00 p. m. Gastric Ulcer.....Waltman Walters, M.D., Rochester



Many carcinomatous ulcers simulate benign gastric ulcers. Many benign gastric ulcers which seem to heal on a nonsurgical regimen recur and operation becomes necessary. No better surgical results are obtained than those of properly performed operations for gastric ulcer and of the available procedures partial gastrectomy is the preferable one. The risk of this operation should not exceed 5 per cent.

3:30 p. m. Three Important Advances in Obstetric Therapy: Analgesia, Intravenous Ergotrate in Third Stage of Labor, Magnesium Sulphate in Eclampsia
—Willard R. Cooke, M.D., Galveston



4:00 p. m. Some Medical Emergencies and Their Management
—George Herrmann, M.D., Galveston

4:30 p. m. House of Delegates. Little Theater, Municipal Auditorium.

7:00 p. m. Dinner in Honor of Past Presidents. Ballroom, Hotel President.

9:30 p. m. President's Reception. Ballroom, Hotel President.

ANNUAL BANQUET

Monday, April 27, 1942—7:00 p. m.—Ballroom, Hotel President

R. B. Denny, M.D., Creve Coeur, President, Presiding

Tendered by Officers of the Association, Presidents and Secretaries of County Medical Societies, Members of the House of Delegates, Members of the Association and Their Guests, Members of the Woman's Auxiliary.

Address of Welcome
—A. E. Eubank, M.D., Kansas City, President, Jackson County Medical Society

Announcements
—Rex L. Diveley, M.D., Kansas City, Chairman, Local Committee on Arrangements

Introduction of Past Presidents of the Missouri State Medical Association.



The Medical Officer in Our Wartime Army
—Col. George F. Lull, M.C., Washington, D. C., Chief, Personnel Division, U. S. Army Medical Corps

President's Reception and Dancing.

GENERAL MEETING

Tuesday, April 28, 1942—8:30 a. m.—Little Theater, Municipal Auditorium



8:30 a. m. Address of the President
—R. B. Denny, M.D., Creve Coeur



8:50 a. m. Address of the President-Elect
—H. L. Kerr, M.D., Crane

9:10 a. m. Problems in the Treatment of Lesions of the Biliary Tract.....Waltman Walters, M.D., Rochester

A discussion of the more frequent causes of error in the differential diagnosis of lesions of the biliary tract will be given. Indications for exploration of the common bile duct, both as a primary and secondary procedure, will be outlined. The management of cases of postcholecystectomy syndrome will form a part of the discussion.

9:40 a. m. The Differentiation of Obscure Anemia
—Russell L. Haden, M.D., Cleveland

The clinician frequently is confronted with patients suffering from serious anemia of unknown etiology. Treatment necessarily depends on finding the cause. The more frequent causes of an obscure anemia will be discussed and the more important differential points outlined. Illustrative cases will be cited.

10:10 a. m. Neurosurgery in the War...Cobb Pilcher, M.D., Nashville



In military surgery, neurosurgical cases are far more numerous than in civil practice and many of them must be cared for by general surgeons. For this reason, the subject should be of general interest. In this paper, the following aspects of wartime neurosurgery are discussed: (1) Civilian advisory activities with particular regard to preparation of manuals, institution of research programs, training of personnel and selection of special instruments. (2) Neurosurgery in the Army and Navy. (3) Recent advances in neurosurgery. (4) Treatment of craniocerebral injuries of war. (5) Prognosis and ultimate results.

10:40 a. m. Military Aspects of Cardiovascular Function
—George Herrmann, M.D., Galveston

11:10 a. m. Endometriosis.....Joe Vincent Meigs, M.D., Boston

11:40 a. m. The Value of Sympathectomy in the Treatment of Peripheral Vascular Disorders
—Harris B. Shumacker, M.D., Baltimore

The technic of dorsal and of lumbar sympathectomy is described and the applicability of these operations in the treatment of peripheral vascular disorders is discussed. A series of cases which have been studied by the author is presented. These cases include thrombo-angiitis obliterans, arteriosclerosis, Raynaud's disease and other vasospastic states, frost bite, post-phlebitic sequelae and leg ulcers. The importance of early recognition and of adequate treatment of peripheral vascular disease is emphasized.

ROUND TABLE LUNCHEON

Tuesday, April 28, 1942—12:00 noon—Ballroom, Hotel President

Ralph A. Kinsella, M.D., St. Louis, Presiding

Internal Medicine.....Russell L. Haden, M.D., Cleveland
George Herrmann, M.D., Galveston

Surgery.....Cobb Pilcher, M.D., Nashville
Joe Vincent Meigs, M.D., Boston
Harris B. Shumacker, M.D., Baltimore
Waltman Walters, M.D., Rochester

GENERAL MEETING

Tueday, April 28, 1942—2:00 p. m.—Little Theater, Municipal Auditorium

2:00 p. m. Gout.....Russell L. Haden, M.D., Cleveland



Gout is an important and interesting type of joint disease. It is the most frequently overlooked diagnosis in arthritis. Typical cases are easily recognized, but many patients do not show the classical textbook picture of gout. The findings in one hundred consecutive cases of gout will be reviewed and the more important diagnostic features emphasized.

2:30 p. m. Protrusion of the Nucleus Pulposus and Other Causes of Lumbar Nerve Root Pain
—Cobb Pilcher, M.D., Nashville

The problem of lumbosacral nerve root pain and its various common causes is discussed. Particular reference is made to protrusion of the

nucleus pulposus of which the following aspects are considered: mechanism, symptomatology, special diagnostic procedures, conservative treatment, operative treatment, pitfalls and results of operation. The following additional causes of lumbosacral nerve root pain are discussed more briefly: tumors of the cauda equina and conus medullaris, tumors of bone, fractures of the lumbar spine, syringomyelia and certain congenital lesions.

3:00 p. m. How Shall We Treat Fibromyomata of the Uterus?
—William H. Vogt, M.D., St. Louis

3:30 p. m. Treatment of Acute Appendicitis
—Harris B. Shumacker, M.D., Baltimore



The problem of the treatment of acute appendicitis is a challenging one. Although there is general agreement as to the advisability of immediate appendectomy in acute unperforated appendicitis, there is considerable disagreement as to the best management of appendicitis with perforation. It is the author's opinion that all cases of appendicitis are best treated by operation and his reasons are given. The experience with the operative treatment of appendicitis at the Johns Hopkins Hospital is summarized. The use of sulfonamides, of gastric suction, of intravenous fluids and of other adjuncts in the treatment of appendicitis is discussed.



4:00 p. m. Amenorrhea and Dysmenorrhea
—Joe Vincent Meigs, M.D., Boston

4:30 p. m. The Correction of Acute Protein Deficiency in the Treatment of Surgical Shock, Severe Hemorrhage and Burns.....Robert Elman, M.D., St. Louis

Surgical shock following severe hemorrhage, difficulties in correcting hemoconcentration in severe burns, circulatory insufficiency in general peritonitis and intestinal obstruction have in common a serious deficiency in the protein content of the plasma. Acute hypoproteinemia is usually, but not always, easy to detect because it is often masked by dehydration. Realization of this aspect of the pathogenesis in each of these conditions leads to effective replacement therapy which is concerned largely with the rapid correction of the protein deficiency. Plasma transfusions will accomplish this although large volumes are often needed (10 to 20 cc. per kilo). Saline and glucose alone, because they contain no protein, are ineffective and, indeed, often do more harm than good. The intravenous injection of the building stones of protein, i. e., amino acids, is another newer way of correcting acute protein deficiency and holds great promise of success. Experiences with the use of this new preparation will be described.

6:00 p. m. Medical Alumni and Fraternity Reunions.

8:30 p. m. Smoker and Entertainment for Members. Jackson County Medical Society, Host. Ballroom, Hotel President.

GENERAL MEETING

Wednesday, April 29, 1942—8:30 a. m.—Little Theater, Municipal Auditorium

8:30 a. m. Practical Aspects of Newly Discovered Forms of Pneumonia.....Hobart A. Reimann, M.D., Philadelphia

In the last few years a form of pneumonia clearly distinguished from the typical lobar form but with signs, symptoms and laboratory data so characteristic as to be regarded as a clinical entity, has been encountered frequently. From analogy with other known pulmonary virus infections, a filtrable virus is thought to be the cause, but no definite proof has yet been obtained. Several "new" viruses causing

similar disease of the respiratory tract have been reported recently such as "Q" fever, a psittacosis-like disease, and a mongoose-infecting virus. A résumé of the clinical symptoms and signs, epidemiology, etiologic studies and treatment of the disease syndrome tentatively called virus pneumonia will be presented.

9:00 a. m. Clinical Diagnosis of Cancer of the Breast
—Arthur Purdy Stout, M.D., New York

This presentation will include an exact description of the method of making a physical examination of the female mammary gland. Various physical signs will be illustrated and their significance and the methods of eliciting them will be discussed. The session will terminate with some suggestions for distinguishing potentially curable from incurable breast cancer and the preferred method for treating each of these two groups.

9:30 a. m. Use of Stored Blood and Plasma in Clinical Practice
—Raymond O. Muether, M.D., St. Louis

10:00 a. m. Hypertension and Its Experimental Treatment
—Irvine H. Page, M.D., Indianapolis



A short description of the mechanism of the disease from the point of view of the Lilly Laboratory for Clinical Research will be given. Attempts to treat human and experimental arterial hypertension also will be discussed.

10:30 a. m. Hyperparathyroidism: Sixty-Seven Cases in Ten Years.....Oliver Cope, M.D., Boston



Hyperparathyroidism is not a rare disease. There have been sixty-seven cases proven by operation at the Massachusetts General Hospital in the last ten years. This unparalleled number is due to the diagnostic acumen of certain of our medical colleagues who have recognized that hyperparathyroidism is a disease of vagaries. It is not primarily a disease of bone; the classical type associated with skeletal changes is uncommon. The majority of cases have no bone disease; the most frequent sign is renal calculus. The probable effect of the parathyroid hormone and the clinical metabolic findings will be discussed in relation to the diagnosis. The treatment of hyperparathyroidism is surgical; it must be precise to meet the challenge of the diagnostician. Many parathyroid tumors have been overlooked by surgeons competent in the field of thyroid surgery; special training is needed. The problem involves both site and size of the tumor. As clinicians recognize more cases, size becomes increasingly important for milder cases are being diagnosed and, the milder the disease, the smaller the tumor. Unless cognizance is taken of the widespread distribution of parathyroid glands and of the peculiarities of isolating them, an increasing proportion of surgical failures will occur. Parathyroid tumors have been removed from the anterior mediastinum in thirteen cases of this series. The newer ideas regarding the operative management of this disease will be given. A short colored motion picture of the removal of a parathyroid tumor from the mediastinum will be shown.

11:00 a. m. The Recognition and Treatment of Degenerative Heart Disease.....William B. Kountz, M.D., St. Louis

Observations on revived human hearts in individuals who had hypothyroidism, diabetes or Addison's disease established that these hearts were less efficient in function than other hearts that were studied in this procedure. Correlation with animal experiments further substantiated that the removal of certain glands; namely, the thyroid, pancreas and adrenal, from the body produced a definite functional weakness of the myocardium. Clinical correlations in individuals with degenerative cardiac disease suggests that recognition of metabolic deficiencies and their treatment improve the cardiac function.



11:30 a. m. Practical Application of Industrial Hygiene to Small Plants
—Donald E. Cummings, Denver

ROUND TABLE LUNCHEON

Wednesday, April 29, 1942—12:00 noon—Ballroom, Hotel President

J. E. Stowers, M.D., Kansas City, Presiding

Internal Medicine..... Irvine H. Page, M.D., Indianapolis; Hobart A. Reimann, M.D., Philadelphia

Surgery..... Arthur Purdy Stout, M.D., New York; Oliver Cope, M.D., Boston

Industrial Hygiene.....Donald E. Cummings, Denver

GENERAL MEETING

Wednesday, April 29, 1942—2:00 p. m.—Little Theater, Municipal Auditorium

2:00 p. m. Surgical Lesions of the Ileum
—Arthur Purdy Stout, M.D., New York



A graphic presentation by means of lantern slides will be made of some of the lesions of the ileum usually treated by surgery. The diseases dealt with will include tuberculosis, regional enteritis, cicatricial stenosis following irradiation, deformities due to peritoneal bands and mesenteric lesions, vitamin deficiency, endometriosis, lymphoid hyperplasia, peptic ulcer of Meckel's diverticulum and various neoplasms such as carcinoma, lymphosarcoma, leiomyosarcoma, lipoma, fibroma, adenomatous polyp. The presentation will include brief case histories, a correlation of the pathologic changes with the symptoms and some evaluation of the efficacy of treatment.

2:30 p. m. New Diseases Encountered in the Middle West
—Hobart A. Reimann, M.D., Philadelphia

It may be asked whether any of the diseases to be described are actually "new" diseases in the sense that they have never existed before. It seems much more likely that all of them have always been present permanently or transiently and were heretofore unrecognized. The introduction of an infectious disease into a community in which it never before existed is always a possibility. It will, no doubt, become a certainty when, after the war is over, troops will return from the tropics bringing with them a variety of exotic infections. In the lecture, several newly recognized entities found in the Central States will be discussed and described as to their etiology, epidemiology, symptoms, diagnosis and control.

3:00 p. m. Principles in the Treatment of Burns
—Oliver Cope, M.D., Boston

Burns have recently accounted for about 10,000 deaths a year in the United States. In this war, burns are the commonest casualty and since they result from air raids, the civilian population as well as the armed forces is threatened. Doctors at home, as well as those in the army, must be prepared to treat suddenly large numbers of burn casualties. Even if Missouri escapes air raids it may be called upon to take care of those evacuated from either coast. Unintelligent care is economic waste. Intelligent care results not only in the reduction of the mortality and disability rates but also in shortened periods of hospitalization; overtaxed doctors and nurses are freed for a greater number. The ideal care of burns includes the prevention of its two major complications, shock and infection. The shock following burns is due to plasma loss and its treatment is rational. Suggestions regarding plasma transfusions will be made. Opinions differ, however, regarding the treatment of the

burned surface, methods of prevention and cure of infection. It should be stressed that the majority of burns are sterile when they occur and that any agent promptly applied, provided it maintains the sterility, is better than waiting for a more complicated agent and hospital facilities The principles underlying the choice of the agents to be applied to the burned surface will be discussed. Certain concepts regarding the importance of nutrition to prompt healing of the wound and possible glandular deficiencies will be incorporated.

3:30 p. m. Treatment of Bright's Disease
—Irvine H. Page, M.D., Indianapolis

The treatment of the three stages of Bright's disease will be described and the importance of understanding the mechanism of the disease discussed.

4:00 p. m. House of Delegates. Little Theater, Municipal Auditorium.

5:00 p. m. Council. Little Theater, Municipal Auditorium.

SCIENTIFIC EXHIBITS

Music Hall Foyer, Municipal Auditorium

American Society for the Control of Cancer.

Anatomy of Head, Neck, Abdomen and Thorax
—Kansas City Anatomical Society, W. Byron Black, M.D., Roland H. Myers, M.D., John C. Howard, Jr., M.D., John A. Growdon, M.D., Kansas City

Anorectal Infection as a Cause of Coccygodynia, Pain in the Hip and Sciatica: Treatment by Pelvic Muscle Massage
—George H. Thiele, M.D., Kansas City

Bed for Home Deliveries.....Edmund Lissack, M.D., Concordia

Carcinoma of the Skin, Manner of Local Spread
—Richard L. Sutton, Jr., M.D., Kansas City

Cardiology.....J. DeVoine Guyot, M.D., Jefferson City

Color Photography
—Department of Pathology, St. Joseph Hospital, Russell W. Kerr, M.D., Kansas City

Endoscopy in the Diagnosis and Treatment of Diseases of the Air and Food Passages.....Evan S. Connell, M.D., and Barnard C. Trowbridge, M.D., Kansas City

Fracture Demonstration
—Frank D. Dickson, M.D., Rex L. Diveley, M.D., Kansas City, W. J. Stewart, M.D., Columbia

Fundus Photography.....A. W. McAlester, III, M.D., Kansas City

Glaucoma
—Committee on Conservation of Eyesight, John McLeod, M.D., Kansas City

Hyperparathyroidism.....Edward P. Heller, M.D., Kansas City

Industrial Health
—Hugh Dwyer, M.D., E. P. Heller, M.D., Ralph Myers, M.D., Kansas City

Management of Compound Facial Injuries
—James Barrett Brown, M.D., and Frank McDowell, M.D., St. Louis

Photographic Studies
—Tumor and Cancer Service, Municipal General Hospital, E. Kip Robinson, M.D., Kansas City

Psychoses of Old Age
—G. Wilse Robinson, Sr., M.D., G. Wilse Robinson, Jr., M.D., Prior Shelton, M.D., Kansas City

Roentgenologic Studies in Some Neurosurgical Cases
—F. A. Carmichael, Jr., M.D., Kansas City

Sterility Studies.....J. Milton Singleton, M.D., Kansas City

Study of Surface Potential of Body During Cardiac Systole
—A. Graham Asher, M.D., Kansas City

University of Missouri School of Medicine
—Hurley L. Motley, M.D., and Cornealia E. Motley, A.M., Columbia

Unusual in Urology in 1941
—Nelse F. Ockerblad, M.D., and Hjalmar E. Carlson, M.D., Kansas City

Motion Pictures

Anatomic Dissection of Anterior Abdominal Wall and Vaginal Hysterectomy.....John A. Growdon, M.D., Kansas City
Deep Intermediate Skin Grafts.....Earl C. Padgett, M.D., Kansas City
Emergency Treatment of Fractures of the Femur
—Rex L. Diveley, M.D., Kansas City
Etiology of Pollinosis.....H. J. Rinkel, M.D., Kansas City
Gastric Resection.....Waltman Walters, M.D., Rochester, Minn.
Hemorroidectomy.....George H. Thiele, M.D., Kansas City
Implant of 7th Nerve for Traumatic Facial Paralysis
—W. Byron Black, M.D., Kansas City
Lesions of Biliary Tract.....Waltman Walters, M.D., Rochester, Minn.
Methods of Examining the Larynx.....John L. Myers, M.D., Kansas City
Syphilis.....United States Public Health Service

COMMERCIAL EXHIBITS

Municipal Auditorium

A. S. Aloe Company, 1819 Olive Street, St. Louis. Booth 9.

The A. S. Aloe Company cordially invites you to visit their booth. They have on display a complete line of American-made Stainless Steel Surgical Instruments, Surgical Supplies, Laboratory Apparatus and Physical Therapy Equipment. Many new and exclusive items are shown. Members of their Kansas City Branch are in attendance.

The Liebel-Flarsheim Company, 303 West Third Street, Cincinnati. Booth 10.

Liebel-Flarsheim are exhibiting the L-F Short and Ultra-Short Wave Generators as well as the famous Bovie Electrosurgical Unit. Other newly developed and interesting physical therapy apparatus and accessories are being shown. Representatives will be pleased to demonstrate this modern equipment to members and the time spent at the Liebel-Flarsheim booth will prove well worthwhile.

Lederle Laboratories, 225 Dierks Bldg., Kansas City. Booth 11.

Lederle Laboratories are featuring an outstanding selection of their pharmaceutic and biologic products: the Sulfonamides, stressing Sulfadiazine—the latest and most magical of all the sulfa drugs; their Vitamin B Complex preparation; Vi-Delta Vitamin line of Lederle products, to which standard group have been added the Multi-Vitamins which contain A, B Complex, C and D, and the convenient measured dose "Clipsules," each one of which gives the required potency of A and D Vitamins in an easy-to-handle method to infants. Biologicals: new laboratory reagent, Blood Grouping Sera (part of every United States Soldier's identification tag); Immune Globulin for measles; Scarlet Fever products. The exhibit is under the direct supervision of Robert F. Moss and there are staff attendants on hand to answer questions and to provide samples and literature on request.

Mead Johnson & Company, Evansville, Indiana. Booth 13.

"Servamus Fidem" means "We are Keeping the Faith." Almost every physician thinks of Mead Johnson & Company as the maker of Dextri-Maltose, Pablum, Oleum Percomorphum and other infant diet materials. But not all physicians are aware of the many helpful services this progressive company offers physicians. A visit to their booth will be time well spent.

Philip Morris & Co., Ltd., 119 Fifth Ave., New York. Booth 14.

Philip Morris & Company is demonstrating the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject, and problems on the physiologic effects of smoking.

E. R. Squibb & Sons, 745 Fifth Avenue, New York. Booth 15.

A number of new and interesting vitamin, glandular, biologic and chemotherapeutic specialties are features in the Squibb exhibit. Well informed Squibb representatives are on hand to welcome you and to furnish any information desired on the products displayed.

C. B. FLEET CO., 921-927 COMMERCE STREET, LYNCHBURG, VIRGINIA. BOOTH 16.

Phospho-Soda (Fleet) has been an ethical product for over half a century. It is a highly concentrated, purified, aqueous solution of the two U. S. P. phosphates, in stable form. It is nontoxic, rapid, but mild in action, without irritation of the gastric or intestinal mucosa. It is indicated in hepatic and gallbladder dysfunctions, and when a thorough eliminating and cleansing action is desired on the upper and lower gut.

H. G. FISCHER & CO., 2323-2345 WABANSIA AVE., CHICAGO. BOOTH 17.

The best way to look at an x-ray apparatus is with an x-ray. You have to get under the finish. It's down there that the real difference lies. To every member, accordingly, we give this special invitation: Look under the finish of the new Fischer models of apparatus shown! Fischer shockproof x-ray apparatus, short wave units, ultraviolet and other generators are built both for performance and to stand the very hardest day by day usage. Demand to be shown the real under-the-finish facts about Fischer Models.

W. E. ISLE COMPANY, 1121 GRAND AVENUE, KANSAS CITY. BOOTH 19.

The W. E. Isle Co.
PHONE VICTOR 2350
2ND FLOOR-1121 GRAND
KANSAS CITY, MISSOURI

W. E. Isle Company invites each registrant to its booth. Well informed representatives will gladly discuss the newer appliances and furnish information about the products displayed. Artificial limbs, orthopedic appliances, surgical supports, maternity belts, elastic hosiery, trusses—you prescribe one or more of these articles frequently. Take this opportunity to examine the complete line of Isle Products.

JOHN WYETH & BROTHER, INC., 1600 ARCH STREET, PHILADELPHIA. BOOTH 20.

You are cordially invited to visit the John Wyeth & Brother booth where they are exhibiting the new Hemo-Guide, an aid to hematologic diagnosis. Samples of the Hemo-Guide are available at the booth. In addition, many of the Wyeth specialties will be displayed, including: Amphojel, Wyeth's Alumina Gel for the management of hyperacidity and peptic ulcer; Kaomagma, Wyeth's Alumina Hydroxide with Kaolin, for the control of diarrhea and colitis; B-Plex, Wyeth's complete Vitamin B complex elixir; Bepron, Wyeth's Beef Liver and Iron, for nutritional anemias; Silver Picrate Products, for the treatment of trichomonas vaginalis vaginitis.

CAMEL CIGARETTES, ONE PERSHING SQUARE, NEW YORK. BOOTHS 21 AND 22.

Camel Cigarettes are exhibiting large detailed photographs of equipment used in comparative tests of the five largest-selling brands of cigarettes. These tests proved that Camels burn slower, and contain less nicotine in the smoke than other cigarettes. Representatives will be available to discuss this research.

THE MENNEN COMPANY, 345 CENTRAL AVENUE, NEWARK, NEW JERSEY. BOOTH 23.

The Mennen Company is exhibiting their two baby products—Antiseptic Oil and Antiseptic Borated Powder. The Antiseptic Oil is now being used routinely by more than 90 per cent of the hospitals that are important in maternity work. Be sure to register at the Mennen exhibit and receive your kit containing demonstration sizes of their shaving and after-shave products; also, for the lucky number prize drawing to be held at the close of the convention for DeLuxe Fitted Leather Toilet Kits.

GREB X-RAY COMPANY, 1412 GRAND AVE., KANSAS CITY. BOOTH 24.

The Greb X-Ray Company, as a Missouri concern, takes special pride in the patronage extended us by Missouri customers. We hope you will visit with us at this meeting and inspect carefully the best and most modern in x-ray equipment.

THE BORDEN COMPANY, 350 MADISON AVENUE, NEW YORK. BOOTH 25.



Up-to-date information about Borden's scientifically designed infant foods is being presented. Biolac, a liquid modified milk, facilitates the preparation of formulas which fully satisfy all nutritional requirements of early infancy except vitamin C. New Improved Dryco, with increased potencies of vitamins A and D and quicker solubility, retains the same high-protein, low-fat composition of original Dryco and offers the same unique formula flexibility. Mull-Soy, an emulsified food for infants allergic to milk, is exceptionally palatable, readily digestible and easy to prepare for feeding. Other infant foods of special merit include Beta Lactose, Klim, Merrell-Soule Powdered Milks, and Borden's Silver Cow Irradiated Evaporated Milk.

GOETZ-NIEMER COMPANY, 1114 GRAND AVENUE-2ND FLOOR, KANSAS CITY. BOOTH 26.

C. V. MOSBY COMPANY, 3517-29 PINE BLVD., ST. LOUIS. BOOTH 27.

Among the new books being displayed by The C. V. Mosby Company are Kilduffe-DeBakey "The Blood Bank and the Technique and Therapeutics of Transfusions," Dieckmann "The Toxemias of Pregnancy," Blair "Cancer of the Face and Mouth," Willius "Mayo Cardiac Clinics," Top "Handbook of Communicable Diseases," Mettler "Neuroanatomy," Tassman "Eye Manifestations of Internal Diseases" and Alexander "Synopsis of Allergy." New editions include Crossen and Crossen "Diseases of Women," Porter and Carter "Management of the Sick Infant and Child," Marriott-Jeans "Infant Nutrition," Davison "Synopsis of Materia Medica Toxicology and Pharmacology," Herrmann "Synopsis of Diseases of the Heart and Arteries," and Dodson "Synopsis of Genitourinary Diseases."

M & R Dietetic Laboratories, Inc., Columbus, Ohio. Booth 28.

M & R Dietetic Laboratories is displaying Similac, a food for infants deprived partially or entirely of breast milk; also powdered SofKurd. Representatives will appreciate the opportunity to discuss the merit and suggested application of these products.

Petrogalar Laboratories, Inc., 8134 McCormick Blvd., Chicago. Booth 29.

The Petrogalar Laboratories, Inc. are offering, in addition to samples of the Five Types of Petrogalar, an interesting selection of descriptive literature and anatomic charts. Ask the Petrogalar representative, Mr. A. H. Sherburne, to show you the HABIT TIME booklet. It is a welcome aid for teaching bowel regularity to your patients.

Winthrop Chemical Company, Inc., 170 Varick Street, New York. Booth 30.

The Winthrop Chemical Company, Inc., extends a cordial invitation to visit their booth where representatives will gladly discuss the latest contributions made by this firm to the medical profession.

Parke, Davis & Company, Detroit. Booth 31.

Featured in the Parke-Davis Exhibit are the sex hormones, Theelin and Theelol; antisyphilitiic agents such as Mapharsen and Thio-Bismol; posterior lobe preparations including Pituitrin, Pitocin and Pitressin; and various Adrenalin Chloride Preparations.

Russell & Company, 1023 Grand Ave., Kansas City. Booth 32.

Surgical instruments, bags, sterilizers, Allison furniture and a general line of surgical and hospital supplies are being displayed.

Abbott Laboratories, North Chicago, Illinois. Booth 33.

Abbott-trained representatives in attendance will be glad to exchange notes with you regarding the rather compresent selection of products on display. Shown in the exhibit are such outstanding specialties as Metaphen, Intravenous Solutions, Nembutal, Pentothal, Sulfonamides, Estrone, Estriol, Pollens and Vitamins (including Multi-Vitamin combinations, Thiamine, Riboflavin, Nicotinic Acid, Sodium Pantothenate and other B-complex factors, Klotogen, Hykinone, Kayquinone, Natopheral, etc.), Cofron, Glucophylline, Bismarsen, Strophanthin-K, Stilrone, Progestin, etc. Your visit will be most welcome.

Cerophyl Laboratories, 2438 Broadway, Kansas City. Booth 34.

Cerophyl Laboratories have on display photographic records of vitamin experiments which are both timely and interesting. Now that the nation's attention is centered on proper nutrition and corrective diets, you will not want to miss this exhibit. A cordial invitation is extended.

Holland-Rantos Company, Inc., 551 Fifth Ave., New York. Booth 35.



Modern contraceptive technic is graphically illustrated with a motion picture, and all the various contraceptive materials including both the Koromex and Hyva diaphragms, Koromex jelly and H-R Emulsion cream, together with the most complete line of contraceptive specialties, are being demonstrated at the booth of Holland-Rantos Company. Be sure to call for samples and literature. Displayed, also, are the new Rantex Surgical Masks and Caps, now being used by hospitals all over the country. They represent an outstanding development.

Sharp & Dohme, Philadelphia. Booth 36.

Sharp & Dohme have their new modern display this year featuring "Delvinal" Sodium, "Lyovac" Normal Human Plasma, "Lyovac" Bee Venom Solution, and other "Lyovac" biologicals. There is on display a group of biologic and pharmaceutic specialties prepared by this house such as Propadrine Hydrochloride products, Rabellon, Padrophyll, Riona, Depropanex and Ribothiron. Capable, well-informed representatives are on hand to welcome all visitors and furnish information on Sharp & Dohme products.

Burroughs Wellcome & Co. (U. S. A.) Inc., 9-11 East Forty-First Street, New York. Booth 37.

Burroughs Wellcome & Co. (U. S. A.) Inc., New York, presents a representative group of fine chemicals and pharmaceutic preparations, together with new and important therapeutic agents of special interest to the medical profession.

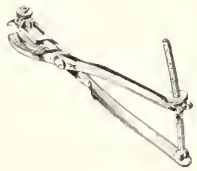
J. B. Lippincott Company, East Washington Square, Philadelphia. Booth 38.

Three new books and a new edition dominate the exhibit of J. B. Lippincott Company. The new second edition of Kracke's "Diseases of the Blood" is a must book for internists and Grollman's "Essentials of Endocrinology," and Youman's "Nutritional Deficiencies" are rapidly approaching that status. "Allergy in Clinical Practice" by the staff of the Cleveland Clinic achieves importance from its approach to the subject through specialists in fields other than allergy. The ever popular "Digest of Treatment" in its most recent issue will also be available.

THE MEDICAL PROTECTIVE COMPANY, FORT WAYNE, INDIANA. BOOTH 39.

The Medical Protective Company's representative, thoroughly trained in professional liability underwriting, invites you to visit their exhibit. He is entirely familiar with the principles of the reciprocal rights and duties of a doctor and patient and with the circumstances peculiar to that relationship. He will be glad to explain how his company meets the exacting requirements of adequate liability protection, which are peculiar to the professional liability field.

J. R. SIEBRANDT MFG. CO., KANSAS CITY. BOOTH 40.



The Goodwin Bone Clamp simplifies the technic for open reduction of long bone fractures. It is made with two separate jaws to enable the surgeon to use the lower jaw as a gouge to reduce trauma. With this clamp, the bone fragments are aligned easily. The Universal Drill Guide and calibrated lock stem control direction and depth of drilling, indicates the diameter of bone and calculates the correct length of screw to use for applying bone plates. When wiring fractures the entire operation, from drilling holes through fragments to the tightening of the wires, is all done with this instrument and a few simple accessories. See demonstration of this Clamp and other instruments and fracture equipment exhibited by the J. R. Siebrandt Mfg. Co.

THE KELLEY-KOETT MFG. CO., INC., COVINGTON, KENTUCKY. BOOTHS 41 AND 42.

One of the most important x-ray advances of many years, the Multicron Control, is being demonstrated by The Kelley-Koett Manufacturing Company, Inc., Covington, Kentucky. The Multicron is incorporated in the Keleket W-3-100 Combination Unit and is designed to take care of troublesome details automatically, leaving the doctor free to concentrate on the important factors of technic. It also assures work of uniformly high quality. The W-3-100 is a complete Combination Unit with generator, tube stand and table. It permits radiography and fluoroscopy at all angles from Trendelenberg to vertical. It is equipped with Bucky Diaphragm, motor tilt table, stereoscopic shift, etc. The Keleket booth will be under the direction of Mr. G. E. Geise, Vice President.

CIBA PHARMACEUTICAL PRODUCTS, INC., LAFAYETTE PARK, SUMMIT, NEW JERSEY. BOOTH 43.

Ciba Pharmaceutical Products, Inc., are displaying their well-known specialties including Coramine, Nupercainal, Digifoline, Trasentine, etc. The latest information concerning Perandren, Metandren, Di-Ovocylin and other gynecogenic preparations is available, together with literature describing their clinical application where androgenic and estrogenic therapy is indicated. Their latest product of interest in the field of vitamins is Biotose. Two representatives of the firm are in attendance and will be glad to answer any questions in regard to the products displayed.

PEVELY DAIRY COMPANY, 1001 S. GRAND, ST. LOUIS. BOOTH 45.



The Pevely Dairy Company is again exhibiting its Council Accepted Evaporated Milk. The use of evaporated milk in infant feeding has been quite universally adopted by pediatricians in an effort to simplify dietary problems. Pevely evaporated milk is suggested also in the treatment of gastric ulcers, acute digestive ailments, for the aged and for convalescents. It is always uniform, easy to prepare and its low cost is an added feature.

CAMERON HEARTOMETER COMPANY, 666 W. DIVISION ST., CHICAGO. BOOTH 46.

The Cameron Heartometer Company is showing the improved Heartometer, a scientific precision instrument for accurately recording systolic and diastolic blood pressures. It also furnishes a permanent graphic record of the pulse rate, the nervous functioning of the heart, the myocardial activity, as well as the functioning of the valves. The Heartometer clearly reveals heart disturbances in both early and advanced stages and is of great value in watching the progress of medication and treatments.

SMITH, KLINE & FRENCH LABORATORIES, PHILADELPHIA. BOOTH 48.

Smith, Kline and French Laboratories again welcome the opportunity of displaying their products including Benzedrine Inhaler, Benzedrine Sulfate Tablets, Paredrine Aqueous and Pentnucleotide, to the members of the Association. Representatives will be only too glad to discuss the products exhibited and will endeavor to answer any questions that may arise concerning them.

GENERAL ELECTRIC X-RAY CORPORATION, CHICAGO. BOOTH 49.

All users of General Electric x-ray and physical therapy apparatus are secure in the knowledge that they have competent technical and maintenance service readily available wherever and whenever called for. In Missouri alone, there are two G-E x-ray branch offices, one in Kansas City and the other in St. Louis. A manager, two salesmen and two servicemen work out of Kansas City, and a manager, three salesmen and two servicemen are stationed in St. Louis. They are ever ready to help you keep your G-E equipment at its highest operating efficiency. You can rely on them, too, to offer you practical and helpful suggestions for the most satisfactory and economical solution of your particular problems.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.
Camden County Medical Society, December 10, 1941.
Benton County Medical Society, December 12, 1941.
Ste. Genevieve County Medical Society, December 19, 1941.
Pulaski County Medical Society, December 22, 1941.
Moniteau County Medical Society, December 23, 1941.
Miller County Medical Society, December 26, 1941.
Chariton County Medical Society, December 29, 1941.
Montgomery County Medical Society, January 20, 1942.
Holt County Medical Society, January 26, 1942.
Dallas-Hickory-Polk County Medical Society, January 28, 1942.
Butler County Medical Society, February 21, 1942.
Scott County Medical Society, February 21, 1942.
Cass County Medical Society, March 5, 1942.
Lincoln County Medical Society, March 5, 1942.
Johnson County Medical Society, March 13, 1942.
Macon County Medical Society, March 24, 1942.
Christian County Medical Society, March 26, 1942.
Webster County Medical Society, March 28, 1942.
Morgan County Medical Society, April 1, 1942.
Franklin County Medical Society, April 13, 1942.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR

Cooper County Medical Society

The Cooper County Medical Society met at St. Joseph's Hospital, Boonville, March 19, at 8:00 p. m.

The following members were present: Drs. G. L. Chamberlain, New Franklin; Arie C. H. van Ravenswaay, W. H. Ziegler, G. W. Winn, G. W. Blankenship, W. A. Barton, T. C. Beckett, M. S. McGuire, R. L. Evans, J. C. Tincher, Boonville.

The following officers were elected for 1942: President, Dr. W. H. Ziegler, Boonville; vice president, Dr. T. C. Beckett, Boonville; secretary, Dr. J. C. Tincher, Boonville; delegate, Dr. Arie C. H. van Ravenswaay, Boonville; alternate delegate, Dr. G. W. Blankenship, Boonville; board of censors, Drs. J. C. Tincher, T. C. Beckett and W. A. Barton, Boonville.

J. C. Tincher, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met March 20 at 8:00 p. m. at the St. Francois County Courthouse, Farmington.

Dr. John H. Hershey, St. Louis, gave an interesting discussion on "Phlebitis." This was followed by round table discussion.

Members present were Drs. Van W. Taylor and D. E. Smith, Bonne Terre; C. H. Appleberry, Flat River; Albert Traubitz, Leadwood; W. H. Barron, Fredericktown; J. P. Yeargain, Irondale; C. C. Ault, Farmington.

C. C. Ault, M.D., Secretary.

BOOK REVIEW

The Doctors Mayo. By Helen Clapesattle. Minneapolis: The University of Minnesota Press. 1941. Price $3.75.

This book is an unusually accurate biography of Dr. William Worrall Mayo and his two distinguished sons, Will and Charlie. The outstanding thing about this work is the absence of fanfare and hero worship, so often employed when the lives of great men are portrayed by a biographer.

Perhaps men of the Mayo inner circle might find discrepancies here and there in the book's authenticity but to the casual friends living outside of Rochester, who have made many intimate visits to the clinic, it certainly fits in with nearly all the hearsay that is current in the town. It seems to be remarkably accurate and the portrayal of the basic common sense with which all three men were apparently endowed is vivid.

The author is evidently a well trained historian, thoroughly sold upon the ethics of her profession as a teacher and writer of accurate history and whenever reliable information about a period in the life of the "Old Doctor" or his sons was not available, no attempt was made to fill it in with mythical hypothesis, theories or unfounded gossip. It narrates all that could be reclaimed about the background, immediate forebears and life of the father and it deals intimately with the early life, schooling, training and later illustrious deeds and even occasional mistakes of the two boys, Will and Charlie.

Of necessity it includes the piece by piece and man by man building of the now famous Clinic and Mayo Foundation. It tells "who's who and when's when" of the coming to Rochester of such personalities as Edward Starr Judd, Henry S. Plummer, Donald C. Balfour, Russell D. Carmen, Mother Alfred, Sister Joseph, Harry Harwick and each and every one of the people prominent in the history and building of this great institution. In fact they become almost like personal acquaintances of the reader before he reaches the last page of the book. It also mentions Albert J. Ochsner, Harvey Cushing, Hugh Cabot, John B. Murphy, Howard A. Kelly, Franklin Martin and numerous other outstanding friends and acquaintances of the Mayos from all parts of the world.

One need not hesitate a moment in recommending this work most highly to the lay reader as well as the profession.

V. V. W.

THE JOURNAL

OF THE

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THE MEDICAL PROFESSION IN WARTIME

ADDRESS OF THE PRESIDENT

R. B. DENNY, M.D.

CREVE COEUR, MO.

The Association is convening at a time when every individual in the nation has a great responsibility. The nation is at war, a war to which each one is committed. America is fighting to defend the principles on which the country is based and which essentially have maintained since the country was founded. The implements of this war designed for destruction vary from those of other wars but the necessity for national courage and morale vary not a bit from other wars.

There are some groups in the nation's population that have a double responsibility in wartime, and the medical profession is one of these groups. The physician must continue to be a physician, at war and at home, but he must also continue to be a citizen, a citizen who commands respect among his neighbors. The physician who remains at home must accept as his responsibility, along with his professional duty, the upholding of the spirit of his community. The physician is considered not only a man of sound technical knowledge but one of adequate capability to judge and interpret information. What he says means more than what the average citizen says. The physician holds an important place in maintaining the courage and morale of the nation.

Much preparation was made for the medical protection of the soldier and the civilian before this country was drawn into the war. Germany, also, had made preparation. I quote from L. R. Broster, senior surgeon to Charing Cross Hospital, London, who recently visited this country at the invitation of the American Surgical Association. He said: "As far back as 1934, Waldman, surgeon-general in chief of the German army in the last war, suddenly published a paper on the war surgery of that campaign. Any reader who takes the trouble to glance through German periodical medical literature from that time onward will find lengthy, comprehensive contributions on war surgery written by some of the foremost surgeons of the Reich. Were these articles fortuitous in the publication? Was the recurrent theme a mere chance? Was the present construction of the new hospital at Heidelberg a freak of the architect, with its enormous moiety underground and its capacious lifts for rapid evacuation of patients to its nether portion of the hospital? It becomes difficult to divorce Aryan medicine and surgery from the same bloody-mindedness that one associates with everything connected with the Nazi regime. The mendacious ululations of Goebbels and all the lying propaganda directed toward repudiating the war guilt of Germany and placing it on other shoulders are refuted as surely by the medical history of Germany for at least five years before the outbreak of war as by the exploits of those Hun and Italian airmen over republican Spain who used the cities of the Iberian Peninsula with helpless men, women, children and babes as practice ground for future exploits already envisaged."

The problem in this country so far has been different and I feel the profession is solving it. Many Missouri physicians are now serving and more are going constantly. The American Medical Association and the state associations have served well in making available to the government information on physicians and in making known to physicians the needs and requirements of the government. The requirements of the government have increased gradually through the years but at a time like this they are tremendous. Illustrative of the gradual increase in demand on the medical profession by the government is the history of Civil Service. The Civil Service Act when passed in 1883 covered only 13,780 positions, practically all of them clerical or office type of employment. At that time there were no general laws providing for compensation for persons injured as a result of employment, the only relief possible in such cases being through an act of Congress, a procedure often unsuccessful and, when successful, a process

Presented at the 85th Annual Session of the Missouri State Medical Association, Kansas City, April 27, 28, 29, 1942.

sometimes involving years and attorney fees. General laws did not come until 1916. In 1896 an order of President Cleveland brought in a number of mechanics and handicraftsmen, raising the total of classified positions to 87,044. In connection with these trades positions, physical qualifications were introduced as a ratable element of the examination. The medical certificate was sometimes executed by the federal doctor but usually by the applicant's own physician. In 1903 Congress appropriated for the first full time doctor on the commission's rolls, a doctor who had been employed in industrial medicine. A large proportion of his time was employed in rating the written examination papers of applicants for physicians, dentists, veterinarians, nurses and other medical and related fields. Attention was given, however, to the types of physical ability desirable for trades positions.

The number of positions in the competitive classified service prior to the first war was 297,000; this total jumped to over 642,000 in the year 1918. In 1921 the requirement was established that all persons be given an examination by a member of the Army or Navy Medical Corps to determine physical condition and fitness for duty. This was extended in 1923 to all competitive positions. On June 30, 1941, the total number of competitive classified positions was 1,358,150. From June 1, 1940, to December 27, 1941, there were 898,997 placements made in the War and Navy departments alone.

This is aside from the physicians who are serving by direct care of selectees. And for those men there are added responsibilities for reports by British physicians indicate that new methods are necessary in this war. These English reports show that during the present war practically every wounded man suffered much more severely from shock than did the wounded of the previous war. In the present war the incidence of fracture is much higher than in the previous war and the former methods of treatment of fracture were found impractical. The method in most common use in England today is the closed plaster cast. Surgeons, while admitting that this method has definite disadvantages, found it the method of choice either with or without the sulfonamide compounds. During the last war, while multiple shrapnel wounds were not uncommon, they were not nearly as plentiful as the multiple wounds found in this war. It is reported that it was not infrequent to find the wounded with twenty or more pieces of explosive bomb or shrapnel in this war. Burns are much more frequent and infinitely more deep seated than were the burns in the previous war.

In France the number of recoveries of the wounded was a small fraction in the present day war compared to those whose lives were saved in the previous war because of the difficulties of transportation, hospitalization, severity of injury and generally changed conditions.

It is evident that it is necessary for the medical profession to devise new methods for the care of the wounded in this war, and that experience gained in previous wars cannot be relied on too much. This war is different, not alone in its purposes but also in its casualties.

While the possibility of this part of the country suffering from bombing may be small, the probability of caring for evacuated casualties from the coastal areas should not be minimized.

Yet another phase of work is the rehabilitation of selectees with minor physical defects. This work is underway in several states and soon will be in operation in Missouri.

Civilian health becomes more than a public health problem in a time of stress. It is estimated that time saved by reducing illness and injury 10 per cent in a year would build five capital ships, 16,000 tanks or 9,000 bombers. A reduction of 10 per cent in the four hundred million working days now lost annually from illness and injury in industry would accomplish this end. Both the medical profession and manufacturers are beginning to educate industry to the benefits of modern industrial health and to develop physicians who can answer the demands created for medical supervision.

But not only in terms of war implements, it is discouraging to contrast the meager salvage of human life by improved methods of treatment of disease by the slow and orderly progress of study and research with the destruction of well people by machinery. While preservation of the nation is the object, work toward a betterment of industrial health is being accomplished that will have far reaching benefit in postwar time.

And organized medicine is not without its special responsibilities. It must now more than ever stand for the definite principles and weighed judgments on which it is based. The welding of the profession into a harmonious group through the county medical society, the state association and the American Medical Association has never been more clearly outlined as necessary than now. The organization does not exist for its own sake but to promote special purposes, the one of public health is always present and to that now is added the nation's welfare and destiny.

Through the years of my practice within the ranks of organized medicine, I have never known the profession more united and more ready to accept the responsibilities, collectively and individually, that are being placed on them at this time. The medical profession is so closely integrated with every phase of defending the United States from the ravages of the aggressive nations that doing its part will have a great influence in preserving the nation and its freedom for which it is willing to fight.

And I know the members who are caring for the civilian health and remain in the state will meet their responsibility this next spring when the State Legislature meets again and be prepared to

see that proper legislation for the health of the state is carried out. The Missouri State Medical Association has always stood for laws that are for the benefit of general public health and the profession must not lose sight of this important endeavor in the strenuous times that are before us. In this connection the profession has a great aid in the Community Health League, as the American Medical Association has in the National Physicians' Committee, and I commend these organizations to you for your support and for your use. The profession needs all bulwarks possible at this time and I ask your serious study of the Community Health League.

I wish to express my appreciation for the cooperation that has been extended me during this year in which I have had the honor to be President of this organization and to commend highly the officers, the Councilors, Secretaries and Presidents of component societies and the many members who have given valuable assistance to the Association during the last year, as they have been doing and will continue to do.

MEDICINE TODAY

ADDRESS OF THE PRESIDENT-ELECT

HOMER L. KERR, M.D.

CRANE, MO.

In the process of evolution of the medical practitioner, his position becomes rather peculiar, whether he be a younger man or not so young. The younger men are always worrying because they are so young and have no whiskers and people have no confidence in them. They always want to be older, middle-aged men so that patients will exhibit a little confidence. And the older men, as they begin to increase in years, find there are some disadvantages in that. To the younger men, and those who are not so young, I would say, do not worry; there is nothing to worry about, because it is surprising how quickly one becomes middle-aged and old. And to the older men who might worry a bit, let me say that Dame Nature has a very nice way of taking care of old age. So really, there are no worries. My old friend, Dr. Joseph W. Love, of Springfield, once remarked in my presence that it was his experience that when he was a young man people apparently had no confidence in him and preferred the older men as their medical advisers; and now since he had come to be older they had changed their affections and now prefer the younger men. Dr. Love also, in making a report of the Committee on Medical Economics, of which he was then chairman (the report being purely informal), said that down in his part of the state a man went to the Annual Session of the State Medical Association, and then went back home and began to save enough money to buy a new suit in order to be able to go to the meeting the next spring in proper style. Now in these wartimes I imagine one will not see so many new suits. There may be some patches on the seats of our pants before this war is over, but a few patches would not be dishonorable in any way.

At the meetings of the various committees and societies that I have attended in the last few months, the uniforms of those in the Army and the fighting forces are always in evidence. Our very finest young men are in uniform now and it is a great inspiration to see these outstanding young men who have volunteered for service to their country. Some of the older fellows almost envy them because they cannot don a uniform and go out and do a little fighting themselves.

The medical profession has never failed up to now, and will not fail this time, to do its part in this emergency and for the defense of our country. Physicians should do everything in the way of loyalty and cooperation for our government; they should, and they will. And I wonder if we may not be allowed to hope that after the medical profession has done everything it possibly can, if it will be too much to expect to receive just a little cooperation from the federal government in the way of a few kindnesses to the medical profession. Physicians are now said to be following a trade; not practicing the grand and noble profession that they were wont to call it and have been calling it for years past. I wonder if it is too much to hope for some cooperation from the authorities in Washington and in the nation generally. If some of our policies are outmoded, if improvements are needed, which no doubt is true, would it be best to ask the politicians, if you like, to make those improvements or should the medical profession be allowed to make those improvements itself? Just who is most able and best fitted to make those improvements for the profession and for the benefit of the public? The answer is obvious.

Presented at the 85th Annual Session of the Missouri State Medical Association, Kansas City, April 27, 28, 29, 1942.

PRONUNCIATION OF SULFANILAMIDE

The recommendation of the Committee on Nomenclature of the Council on Pharmacy and Chemistry of the American Medical Association regarding the pronunciation of the words amide, sulfanilamide and sulfathiazole has been accepted by the Council, it reports in *The Journal* of the Association for January 31.

The Council reports that "the committee recommended that the word amide be pronounced with a long 'i' (amīde), this being preferable both because of the final e and the analogy with chloride and iodide. For the same reason the committee held that the preferred pronunciation of sulfanilamide should be sulfanilamīde with the major accent on the antepenultimate syllable, il'.

"In agreement with the principle that English accentuation is recessive, it is believed that the preferred accent would be on the syllable thī in sulfathīazole."

It is explained that these pronunciations are in harmony with those recommended by the American Chemical Society.

THOUGHTS ON THE PREVENTION OF CORONARY DISEASE

O. P. J. FALK, M.D.

ST. LOUIS

Mounting statistical evidence of the increasing mortality from coronary disease presents a distinct challenge to preventive medicine. Until there is more complete fundamental knowledge concerning the pathogenesis of human atherosclerosis, one can speak with no final assurance concerning the prevention of coronary artery disease. Irvine H. Page,[1] in discussing the nature of the chemical changes occurring in atheromatosis, concludes that at least two factors may assist in its production. One of these is lipemia which appears to be particularly important in diabetes and in nephrosis. The other factor acts in the cells of the arteries themselves and appears to be initiated, for example, by the strain of prolonged hypertension. That hypertension per se is not the sole etiologic factor concerned in the production of the attendant coronary sclerosis is suggested by the fact that although careful clinical and postmortem studies show that Negroes have more hypertension that white persons, they nevertheless show significantly less coronary disease. If hypertension per se was the major determining factor in the production of coronary atherosclerosis, obviously there would be proportionately more coronary disease in the Negro than in the white population.

Another arresting fact is the sex discrepancy seen in coronary disease which is conceded to be from four to six times more common among men than women. It has not been possible to explain this discrepancy on differences in anatomy, environment or habit. The significant difference between men and women in their susceptibility to coronary disease may be that, because of women's childbearing proclivities, nature had endowed her with a cholesterol clearing mechanism which may be an important factor in accounting for her relative protection. It is known that during pregnancy the storage of lipoids in the body is greatly increased as part of a physiologic provision for the nutrition of the developing fetus. This increase is cleared away after pregnancy. Coronary occlusion is relatively uncommon in women under 70 unless they have hypertension or diabetes. In diabetes the blood cholesterol is usually at a higher than normal level. Fellner,[2] reporting his observations upon 12,000 autopsies on arteriosclerotic subjects, observed that as a rule women developed arteriosclerotic changes later in life than men and presented a milder form of the disease. Not until the age of 70 do the curves of the two sexes reach the same level. The coronary vessels were calcified in about 50 per cent of persons above 60. He found that the aorta and coronary vessels were calcified more frequently in people of stocky build than in those of the more athletic type but that the latter often presented sclerotic coronary vessels. Among the rural population, sclerotic changes developed later and to a milder degree. The well-to-do classes who are inclined to live a relatively sedentary life, and tend to ingest more toxins in their diet, seemed to develop arteriosclerotic changes earlier. The same thing was true of mental workers, in which class, however, the aorta and not the cerebral vessels were attacked.

That coronary disease is particularly prevalent among physicians is the impression obtained by many from observations in treating physicians. This impression is strongly confirmed by mounting statistical evidence. In a recent publication,[3] I called attention to the fact that coronary mortality among physicians shows more than twice the general male increase in the last decade. What are the factors concerned in this general increase of coronary disease? Why is the medical profession particularly susceptible? Is it, perhaps, that physicians are subjected to a greater degree of unrelenting strain and responsibility? Are the less vigorous physical living habits of today detrimental to coronary welfare? Is the irregular rest with the attendant fatigue that so characterizes the physician's life a significant factor? What role is played by the increased use of tobacco? Of what importance are nutritional factors in general and habits of eating in particular? Are physicians directing proper attention to the problem of conserving their hearts by avoiding, or at least minimizing, such influences as may invite early cardiovascular decay? Are there any attentuating influences that might affect this mounting toll from coronary disease, or is it due entirely to the inescapable consequence of senescence in an aging group?

Notwithstanding the fact that increasing coronary consciousness helps mold present day vital statistics, it is improbable that it adequately explains the undeniable coronary trend of the past decade in particular. Dr. Wm. J. Mayo[4] points to the frequency of coronary deaths among surgeons who must have stern control over their emotions. Osler wrote that angina pectoris is not a disease of the working classes but that the life of stress and strain of the medical profession seems to predispose to it. Francis Denny[5] suggests that the difference may be that those who suffer least have occupations that call for a certain amount of daily physical activity, while those with relatively sedentary occupations have insufficient muscular activity which, as a basic underlying cause, may be of even greater significance than their increased emotional and nervous strain.

THE PATHOGENESIS OF HUMAN ATHEROSCLEROSIS

Whatever the cause, atherosclerosis of the vascular system is certainly a form of tissue degeneration. Deposition of calcium in injured tissue is probably a protective mechanism to safeguard the

Read before the Mississippi Valley Medical Association, Cedar Rapids, Iowa, October 3, 1941.

strength of these tissues and as such is a munificent act of nature. The deposition of cholesterol, however, in early atherosclerosis is not protective and may lay the foundation for ultimate disaster. The work of Leary[6] strongly suggests that metabolic deterioration is an important factor in the production of these atherosclerotic changes. It is evident today that a multiplicity of nutritional and metabolic influence as well as the cumulative traumata of life, superimposed upon a vulnerable hereditary tendency, are all contributing factors. The solution of this problem has not been given by any convincing set of experiments but, when the answer is found, life will almost certainly be further prolonged. The part played by nutrition in the development of vigorous resistance and life extension may be of equal importance to heredity, according to the observations of Sherman[7] who believes that with the addition of food rich in calcium and protective vitamins, the years of active life might be increased 10 per cent, which in man means about six years. Experimentally it has been shown that a higher than average calcium intake is conducive to better than average health. With a calcium rich diet, in observations over a long period of years made on white rats, whose metabolism resembles that of man, Sherman found that there is an improvement in the utilization of food, better growth, greater adult vitality, and a longer period between the attainment of maturity and the onset of senility with a proportionate increase in the length of life. It would seem logical to assume that a scientifically planned diet might go a long way toward delaying the ravages of age. M. C. Wintermitz,[8] who has been a careful observer and student of coronary sclerosis, feels that coronary disease is not the result of any single factor alone but represents the summation of all the injuries and stresses of life, including infection, sudden strain, emotional shocks, chronic fatigue, nutritional defects and certain toxic influences. Sir Thomas Lewis maintains that it is the repeated constrictions, the result of repeated stresses, that eventually traumatize the coronary vessels and produce occlusive changes. Additional factors that suggest themselves as significant in the increase of coronary disease include the aging of the population, the effect of the motor car upon former habits of walking and the generally lessened physical activity of executive, professional and clerical groups, the increased use of tobacco, the greater prevalence of the anxiety state, and the increased incidence of overweight, along with better diagnosis and more accurate reporting. The importance of the great economic crisis with its attendant anxiety, which has been so prevalent during this past decade, is probably an important factor. The effect of the current war tension is yet to make itself felt although it may be neutralized by the benefits of a more frugal life with greater physical activity. Tobacco is known to produce vasoconstriction in the peripheral vessels and there is reason to believe that it may have similar action on the coronary vessels. This may well become a determining factor in the production af acute occlusion in a coronary sclerotic person whose coronary reserve is already greatly diminished. English, Willius and Beckson,[9] from an analysis of 1,000 coronary cases, report a greater incidence of coronary disease among smokers, especially in the group below 50 years of age. The greatest incidence was among the excessive smokers. Raymond Pearl's[10] study indicated that expectation of life of nonsmokers exceeded that of smokers and the average longevity decreased progressively with increasing degrees of smoking.

Accumulating evidence points to the possibility that certain of the atherosclerotic changes occurring in coronary vessels of middle-aged subjects may not be the result of a progressive deterioration, but may be an *actual acquired disease* of the *arteries,* influenced by certain nutritional and environmental factors. Hurxthal[11] expresses the thought that atherosclerosis is not necessarily due to the aging process but that metabolic, toxic and pressure factors appear to exert a provocative influence. About 30 per cent of the population is overweight and obesity is conceded to be a contributing factor in the production of coronary disease and myocardial degeneration. Cholesterol increases are noted in diabetes and in hypothyroidism, in both of which the incidence of atherosclerosis is increased. Rabinovitch[12] has reported that 85 per cent of diabetic patients developed atherosclerotic changes in five years on the high fat regime that was in vogue during the previous decade, but that with the low fat, higher carbohydrate regime now prevalent, only 28 per cent developed demonstrable arterial changes over a five year period. The observations of Leary[6] are suggestive evidence that *nutritional factors,* as influenced by the type of diet, may quite possibly play a role in the production of *premature atherosclerosis,* so frequently the cause of the tragic, unheralded coronary episodes occurring in the prime of life. It is possible that thyroid extract, potassium iodide and lipocaic may influence the absorpton of cholesterol from blood vessel walls, according to the observations of Page.[1] Murata and Katoaka[13] and also Liebig[14] found that simultaneous administration of thyroid along with feeding of cholesterol to rabbits, prevented deposition of lipids in the aorta. Turner[15] showed that potassium iodide, as well as thyroid, exerted a protective action and, furthermore, prevented the hypercholesterolemia that usually occurred, and that there was a relationship between the development of atherosclerosis and hypercholesterolemia. Page[1] stated that iodine is not unique in its ability to prevent deposition of lipids but that large doses of potassium thiocyanate and lipocaic are apparently similarly effective in experimental animals. No evidence is at hand to decide whether iodides are of any value in man and such medication is as yet

entirely on an empirical basis, although sanctioned by time honored clinical practice.

The approach to the solution of the coronary problem is predicated upon factors known to be concerned with the pathogenesis and progression of coronary atherosclerosis. This approach is based upon sound principles of well balanced living with sufficient physical activity and with emphasis on moderation, mental equanimity, emotional tranquility and sensible conservation of energy through the middle and later decades of life, the post prime years when modification in the mode of living is exacted by inexorable biologic laws. Such precautions as these seem logical measures to follow for conserving cardiac reserve. It is a difficult thing for the average American executive or professional man, so accustomed to long hours of work and unrelenting activity, to realize that real luxury in the philosophic sense consists in having time to spare. The philosophy of hard work, the spirit of private individual enterprise that has made America what it is today, that has pioneered and developed American agriculture, transportation and industry, all this worship of hard work is a cross upon which men can crucify themselves. A review of one's own *personal type* of *intemperance* for his own enlightment and welfare is suggested by Bruce Barton in a recent contribution, stating that alcoholic intemperance is relatively insignificant when compared to the number of intemperances of other types, such as excessive work, roller-coaster emotionalism, life-sapping worry, quarreling over petty annoyances, violent exercise, the feverish pursuit of pleasure and, I might add, addiction to that soul-shriveling quality of perfectionism. All of these inordinate excesses and intemperances drain vital energies and handicap reserve.

It would appear that the adoption of a more tranquil and protective philosophy of life might even serve to help neutralize the influence of an unfavorable heredity or a hyperreacting temperament, thus offering a reasonable hope of postponement, if not prevention, of many of the tragic sequelae of coronary disease encountered in the world of today.

301 Humboldt Building.

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THE ROLE OF CHEMOTHERAPY IN THE TREATMENT OF OBSTETRICS AND GYNECOLOGIC CONDITIONS

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Experimental and clinical investigations of the sulfonamide group of drugs were started less than seven years ago when Domak[35] published the results of his studies with prontosil and described the striking experimental effects of this dye upon streptococcal infections. Since then many different compounds have been developed. Sulfanilamide, sulfapyridine, sulfathiazole and sulfadiazine are among the more important compounds that have made a place for themselves in the treatment of certain types of obstetric and gynecologic conditions.

The object of this paper is to point out the pharmacologic characteristics and chemotherapeutic properties of these drugs, then try to adapt them to the various types of infectious processes encountered in the practice of obstetrics and gynecology.

Before doing this, it seems advisable to consider those precepts in the study of the sulfonamide compounds that are responsible for much of the information every physician should have in order to administer them safely and intelligently.

Despite the fact that chemotherapy has brought more than one "miracle" to the practice of medicine, it is not a "cure-all." Unless used judicially and carefully more harm than good may be the ultimate result. The sulfonamides must be considered as dangerous drugs because they still can cause irreparable damage in certain cases.

According to Adair, Hesseltine and others,[30] the basis of specificity of sulfonamide compounds in bacterial infections is still unknown. In the light of present knowledge these chemical compounds are not specific for any one type of bacteria to the exclusion of all others. They are effective against cocci and bacilli and against gram-positive as well as gram-negative organisms.

By some mechanism they exert a retarding effect on the growth of certain microorganisms and are completely inert toward other organisms which appear to be closely related in species.

It is important to emphasize that these drugs have no direct effect on the morphologic tissue changes associated with infectious disease processes. The structural and functional changes wrought by the invading organisms cannot be remedied nor the tissues restored by the use of this therapy. Their administration early in the course of bacterial invasion is essential if the resultant anatomic and physiologic damage is to be minimized. The method of administration as well as the dosage must be considered. The important factor is the size of the dose rather than the total amount to be given. Concentration and effect de-

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pend not only upon the amount given, the frequency and regularity of the dosage but also upon the rate and degree of elimination.

A decision to use sulfonamides should be based entirely upon etiologic and scientific considerations. They should be used only in infections in which carefully controlled investigations have proven them to be effective. Diagnosis depends upon bacteriologic examination by means of smears and cultures.

The use of these drugs in infections against which they have no specific effect is more likely to do harm than good because their toxicity may be harmful without any conpensatory value in combatting the infection. These compounds are not indicated for trivial conditions that may be corrected with simpler and less toxic therapy.

Dosage must be adequate and appropriate. Too large doses are dangerous and too small doses are ineffective. The drugs must be given at regular intervals since their efficacy depends upon the maintenance of adequate levels of concentration in the tissues and body fluids.

When improvement is obtained, the maintenance of high blood levels should be continued for the first few days and then gradually reduced as the patient improves. The reduced dosage should not be discontinued until one is sure that the infection is well eradicated.

It is important to know which compound is most effective against a given type of infection. Treatment should be instituted early, then carried through properly and systematically to a conclusion. Dosage should be adequate, accurate and regular. It is an error not to use these drugs early in the types of infections for which they are known to be beneficial, but their use must be carefully planned and closely supervised.

The type of lesion as well as the causative bacteria exerts an influence upon the end result obtained from any chemotherapeutic procedures. Little effect can be demonstrated in thrombophlebitis, abscesses and advanced peritonitis (McKelvey[36]).

SULFANILAMIDE

Sulfanilamide is the oldest and best understood drug. It is easily administered, fairly well tolerated by the body and excreted without difficulty.[2]

It is acknowledged to be effective against the hemolytic streptococcus, the meningococcus, gonococcus, Escherichia coli and Clostridum welchii. It may have some value in staphylococcal infections of the urinary tract but is of questionable value in the treatment of staphylococcic septicemia or local staphylococcic infections.[30]

In time it probably will be given up entirely in preference to newer derivative compounds. It is used much less frequently at the present time although conditions do exist in which it may be preferred.

On the basis of present knowledge it is still the drug of choice for the treatment of infections due to the hemolytic streptococcus, meningoccus, Ducrey's bacillus (chancroid) and Welch's bacillus (gas gangrene).

In severe infections it is important to attain an effective blood level as soon as possible. Therefore a large initial dose of sulfanilamide is recommended in order that the desired level of 10 to 15 mg. per cent may be attained as quickly as possible. This level should be maintained or increased by doses of the drug given at four hour intervals both day and night.

The maintenance dose should be continued until a marked clinical improvement in the condition of the patient is noted. Then it should be decreased slowly day by day, but not discontinued entirely until the patient is ready to be up and about.

In the milder tissue infections susceptible to sulfanilamide therapy, blood levels of from 5 to 10 mg. per cent are generally adequate to bring the infection under control. Here again it is important to maintain an even concentration of the drug in the tissues and because of this a four hour dosage schedule is best if circumstances permit its use.

In severe infections (blood levels from 10 to 15 mg. per cent) the initial dose is from 70 to 80 grains followed by a maintenance dose of from 15 to 20 grains every four hours for a patient weighing approximately 150 pounds. Sixty grains of sodium bicarbonate daily in divided doses should be given also.

To maintain blood levels of from 5 to 10 mg. per cent for mild or moderately severe infections, 90 grains of sulfanilamide in twenty-four hours (15 grs. every four hours) should be given together with 60 grs. of bicarbonate of soda.

If oral medication is not possible the drug may be given by hypodermoclysis.

For rectal administration sulfanilamide is preferable because it is absorbed from the rectum more readily than any of the other sulfonamide compounds.

SULFAPYRIDINE

Sulfapyridine offers no particular advantage in the treatment of obstetric or gynecologic conditions. Therefore its usefulness in this particular field is not worthy of comment at this time.

SULFATHIAZOLE

Sulfathiazole has a wide range of potency and a good pharmacologic approach. It is excreted rapidly and has a tendency to precipitate in the urinary tract with the resultant formation of acetyl-sulfathiazole crystals.

It is the drug of choice in staphylococcal infections and in the treatment of gonorrhea.[4] It seems to be more effective than any of the other sulfonamide derivatives in the treatment of certain types of colon bacillus infections and is particularly effective in most infections of the genito-urinary tract.

The peak of absorption of sulfathiazole into the blood stream is reached three hours after oral administration of a single dose. Unless the drug is continued this peak is markedly decreased at the end of six hours and at the end of twenty-four hours there is less than 1 mg. per cent still present in the blood.[7] Approximately 40 per cent of a single dose of sulfathiazole is excreted in the urine within six hours, while between 70 and 80 per cent will be excreted at the end of twenty-four hours.

An initial dose of 4 gms. (60 grains) of sulfathiazole followed by 1 gm. (15 grains) every four hours will promptly establish and maintain appropriate blood levels (from 3 to 6 mg. per cent) in the majority of patients. Sulfathiazole is readily tolerated, of moderate toxicity and fairly well adapted to prolonged use.[9]

It frequently produces hyperpyrexia.[36] This must be kept in mind when exacerbations of fever occur.

It is the drug of choice except in infections with beta-hemolytic streptococcus and Welch's bacillus, in which sulfanilamide gives much better results.

In severe cases the sodium salt of sulfathiazole may be given intravenously in order to establish adequate concentration in the blood as quickly as possible. These levels may be maintained by oral administration. When giving sulfathiazole intravenously, special attention to urinary output is absolutely essential in order to facilitate adequate excretion.

Topical application of sulfathiazole to the skin produces no detrimental local or systemic effect.[11] So far as I know there is nothing as yet to indicate that the local application of sulfathiazole to an intact skin results in absorption of the drug into the systemic circulation. This is not the case, however, when applied vaginally.

Reactions to sulfathiazole are frequent but they are rarely severe or dangerous. Nevertheless, the drug should be used carefully and in properly selected cases rather than at random or without real provocation.

Fine macular eruptions of the skin may be a manifestation of toxicity. This possibility always should be kept in mind; otherwise it might not be noticed until after an extensive morbilliform dermatitis has developed.

SULFADIAZINE

Sulfadiazine is a relatively new sulfonamide compound having certain distinctive characteristics. The opinion of McKelvey and associates[36] is that it presents advantages which justify the expectation that it will replace the other sulfonamides for almost all purposes. It is the pyrimidine analogue of sulfapyridine and sulfathiazole and is highly effective against the common pathogens.[11] It is less toxic to the liver, causes less nausea and vomiting and less frequent elevations of temperature.

It may be administered at longer intervals because it is excreted more slowly. It is less soluble than the other drugs, but is readily absorbed from the gastrointestinal tract.

Maximum blood levels after oral administration are uniformly higher and better sustained than after corresponding doses of the other sulfonamides.[1, 11] Excretion is almost entirely through the urinary tract.

Because of its slower excretion, dosage must be controlled carefully to prevent the danger of producing blood levels that are too high. To guard against this, blood determinations should be made more frequently than with other sulfonamide compounds.

A blood concentration of from 10 to 15 mg. per cent is desirable for full dosage. This may be best attained by giving an initial dose of 4 gms. (60 grs.) followed by 1 gm. (15 grs.) every four hours for the first twenty-four hours. Determination of the blood level is then made. If it is adequate, 1 gram every six hours thereafter should maintain it.[36] Concentrations may vary from 5 to 20 mg. per cent in some cases.

Sulfadiazine may show greater effectiveness because of its greater concentration in tissue fluids.

Toxic manifestations have been reported in only a small percentage of cases. In general, they are much less frequent and much less severe than those encountered with other types of sulfonamide derivatives.

The spinal fluid level is approximately two thirds of that found in the blood at any given time.

Sulfadiazine is excreted almost entirely in the urine, within from thirty-six to forty-eight hours. It is more soluble in urine as acetyl sulfadiazine than sulfathiazole and it is excreted more slowly. Acetylated sulfadiazine crystals are commonly found in the urine but are not associated with hematuria or oliguria.[31]

Sodium sulfadiazine may be given intravenously.[5] Rectal administration in from 400 to 500 cc. of warm water is permissible but absorption is poor.

Maximum blood levels are obtained immediately following intravenous administration. It requires from two to three hours when injected under the skin and from four to six hours when taken by mouth. These levels are higher and sustained longer than those of any of the other sulfonamides. Moderate amounts are still present in the blood twelve hours after cessation of administration of the drug and a slight amount may be found after forty-eight hours. Sixty per cent of a single dose is excreted in twenty-four hours and 94 per cent within seventy-two hours. Because of this slower rate of excretion, 1 gm. (15 grains) every six hours will maintain better blood concentration than 1 gm. every four hours of the other derivatives.[5]

Toxic reactions to sulfadiazine have been reported in 14.1 per cent of 466 cases.[11] Mild nausea and vomiting were reported in 9.2 per cent. Hematuria was present in two cases and ureteral colic with anuria was reported in one patient after sev-

enteen days of sulfadiazine therapy. This was relieved by catheterization and lavage of the ureters and kidney pelvis. Acetyl crystals were present in thirty-five cases and were of the "sheaves of wheat" type, resembling those of acetyl sulfathiazole. An increase of nonprotein nitrogen was present in five cases, but was lowered in sixteen other cases.

Leukopenia developed during the first four days in six cases and was present by the sixteenth day in three more, but the white count returned to normal when sulfadiazine was stopped.

Skin reactions in the form of a morbilliform rash, erythema nodosum and a papular type of necklace dermatitis "that may extend down on to the trunk"[1, 11] have been observed. Slight temperature elevations have been noted, as well as multiple joint pains, in a few cases. Characteristic reactions to sulfadiazine may be mild occipital headaches with stiffness of the neck and a generalized itching of the skin.

TOXICITY

McKelvey[36] reports two cases in which death occurred in patients in whom sulfanilamide was being used for the treatment of gonorrhea at the same time that arsphenamine was being given for syphilis. He says, "The significance of these two cases is not entirely clear, but it is suggested that these two drugs should not be used concurrently."

Sulfanilamide produces no direct damage to kidney tissue, hence special precautions are not necessary. Sulfathiazole on the other hand may exert a direct toxic effect upon the renal epithelium; or may cause a mechanical blockage by the deposition of acetyl crystals in the tubules and kidney pelvis. Therefore, a twenty-four hour urinary output below 1,000 cc. when the intake is adequate (from 2,500 to 3,000 cc.) or the presence of gross blood in the urine are sufficient indications to prompt cessation of medication. However, the presence of acetyl crystals in an otherwise normal urine is not considered an indication for stopping the drug. In general, when a patient is getting sulfanilamide it is not necessary to force fluids, but careful attention to fluid intake is of the utmost importance when sulfathiazole is used. If the urine is concentrated, precipitation of (acetyl) sulfathiazole is likely to occur with consequent formation of renal calculi. Therefore, urinary output must be watched carefully and measured daily. The twenty-four hour output should never be less than 1,000 cc. and preferably 1,500 cc. To obtain this a twenty-four hour intake of approximately 3,000 cc. is necessary.

Because the excretion of sulfadiazine is slow, an increased urinary output should be maintained. It helps to prevent the development of excessive concentration levels in the blood. Therefore, intake and output requirements should be the same as those for sulfathiazole.

Patients receiving sulfonamides should be watched carefully for toxic manifestations, regardless of how slight they may be. When receiving these drugs for the first time, patients should be seen at least once a day. Headache, generalized aching or soreness and malaise should be elicited carefully because they may be precursors of toxic reactions.

Careful examination of the sclera for jaundice and the conjunctiva for injection or paleness is important. When these are present an acute hemolytic anemia must be ruled out. If jaundice is present and the conjunctivae are normal, the possibility of a damaged liver must be kept in mind.[4]

All patients receiving any type of sulfonamide therapy should be kept out of the direct rays of the sun and away from ultraviolet light because, if photosensitive, they may develop a skin rash while receiving the drug.

Hematuria, anuria, oliguria, pain in the loins and urolites have been reported as being associated with the use of sulfathiazole. These complications are due to the formation of acetyl crystals in the urinary tract.

Schwartz and Flippin[6] studied the effects produced when alkalies were administered in conjunction with these drugs. They counted the number of crystals present in one drop of morning urine taken from patients who were receiving alkalies with each dose of sulfonamides. These were compared with the urine of patients receiving the drug alone. They were able to prove that the urine of patients receiving alkalies showed less than one half the number of crystals found in the urine of those in a controlled group. Therefore, they concluded that it is advisable to administer alkalies to patients who are receiving sulfathiazole and possibly also those receiving sulfadiazine.

Toxic reactions resulting from the use of these drugs with the possible exception of leukopenia and agranulocytosis can be discovered if patients are kept under careful supervision during their courses of treatment.

When toxic manifestations occur and cannot be controlled, the drug should be stopped and fluids in large amounts forced, vigorously, to effect elimination as quickly as possible.

The concurrent administration of certain drugs may prove detrimental to the patient by augmenting the toxicity of a chemotherapeutic agent. Therefore, sulphates, saline laxatives and arsenicals should not be employed while the sulfonamides are being given, until more is known about this phase of the problem. Sedatives are not contraindicated. Certain alkalies including sodium bicarbonate are helpful. Late complications such as fever, skin rashes and conjunctivitis, are not infrequent and sometimes are severe.

Hepatitis may develop during the course of sulfonamide treatment in acute infections or it may not appear until several days after treatment has been discontinued. When it is not delayed, it may be difficult to decide whether the reaction is due to liver damage from sepsis or from the sulfonamides being used.

CONDITIONS IN WHICH CHEMOTHERAPY MAY BE USED
VENEREAL DISEASES

1. *Gonorrhea.*—Sulfathiazole is preferred. It has been given in doses of 4 gms. a day for five days with encouraging results.[4] Regardless of whether the infection is acute or chronic, the same type of medication is used. Weekly follow-up examinations for a period of three months showed that 91.2 per cent of a total of 196 patients were permanently cured.[32]

When the infection has spread beyond the cervix and involves the pelvic adnexae, the same medication is used and is continued until three days after all local and systemic manifestations of the infection have disappeared. In addition to sulfonamide therapy these patients should be given general supportive treatment including as much rest as possible for at least two weeks, bland diet, adequate fluids, good elimination and freedom from any type of sexual excitation. Fluids in large quantities are forced, but alcohol in any form should be omitted. They cannot be discharged as cured until a period of at least three months has elapsed after cessation of treatment, during which time smears and cultures taken at regular intervals must be consistently negative. These bacteriologic examinations will be made free of charge in any city or state board of health laboratory.

With modern methods of treating gonorrhea in women, the incidence of pelvic infection has been and should continue to be reduced.[15] Extension to the pelvic structures may occur early or late in relation to the initial infection. Factors favoring extension of the infection are menstruation, energetic local treatment to the cervix, abortion, miscarriage, coitus, strain, fatigue, malnutrition, alcoholic beverages and repeated bimanual examinations. The therapeutic principles employed in the treatment of pelvic inflammation, particularly gonococcal, have been outlined elsewhere. The application of local heat, provided in the form of diathermy, Elliott treatment or fever cabinets, should be employed without hesitation when response to the treatment outlined is not forthcoming. Surgical treatment of these conditions should be reserved for those cases in which abscess formation has taken place.[15]

Treatment is stopped if toxic manifestations in the form of fever, vomiting, severe headache and skin eruptions develop.

Hesseltine et al[23] made comparisons of results obtained from the local treatment of gonorrhea with those observed from the use of sulfonamides. They have shown that chemotherapy is superior to local treatment of gonococcal infections in women. Treatment should be started immediately when history and physical findings suggest the diagnosis, sometimes before it can be confirmed by laboratory methods. Prompt treatment prevents extension of the infection into the pelvic cavity or helps to control it if it is already there.[25]

2. *Chancroid.*—In chancroidal infections the diagnosis depends upon identification of Ducrey's bacillus in specially stained smears and a positive reaction to the Ducrey skin test. This is an intradermal injection of Ducrey vaccine and is specific in 95 per cent of the cases. However, a positive skin test may indicate a past infection that has already healed. Therefore, identification of Ducrey's bacillus taken from the ulcer itself should be accomplished whenever possible.[8]

Sulfathiazole in doses of from 7½ to 15 grs. (.5 to 1 gm.) given four times a day for ten days will produce complete healing in most of these cases. It has also been used effectively in doses of 20 grains four times a day for five days followed by 10 grains four times a day for another nine days. Local application of sulfathiazole powder to superficial chancroidal ulcers in conjunction with the oral medication facilitates healing.

3. *Lymphogranuloma Venereum.*—Seven cases of lymphogranuloma venereum have been treated with sulfathiazole. The daily dose was 4 gms. (60 grs.) divided into four doses of 1 gm. each and given every four hours, for a period of two weeks. Healing was complete in each case. The clinical diagnosis was substantiated by positive Frei tests. The Ducrey tests were negative and Donovan bodies could not be found in smears or biopsies taken from areas of ulceration.

4. *Lymphogranuloma Inguinale.*—One case of lymphogranuloma inguinale has been seen. Donovan bodies were demonstrated in smears taken from an ulcerated lesion in the inguinal region. Frei and Ducrey tests were negative. The same type of sulfathiazole therapy as that used in the treatment of lymphogranuloma venereum was instituted.

The patient disappeared one week later and has not been heard of since. I have had no other experience to date with the treatment of this condition.

PELVIC INFLAMMATIONS

The present treatment resolves itself into the specific and supportive and both are essential in securing optimal results.

Chemotherapy is not always indicated in the treatment of puerperal or postabortal infections that remain localized to the uterus. In such cases the fever reaction may be mild with moderate tenderness of the uterus on bimanual palpation. Uterine discharge may be slight or profuse. Bed rest, maintenance of adequate drainage and limitation of infection through the use of effective uterine styptics may be all that is needed in the treatment of this mild type of infection. When the infection spreads beyond the confines of the uterus extension may be by way of the lymphatics into adjacent retroperitoneal structures or by way of the tubes into the peritoneal cavity. Then, because the infection is much more severe, sulfonamide therapy is indicated.

Infections are recognized but the invading organisms should be identified. Sulfonamides are ef-

fective against the beta-hemolytic streptococcus but less so against the anaerobic streptococcus. Their use in the absence of bacteriologic diagnosis is justified only when the patient is seriously ill and delay in obtaining the exact diagnosis might endanger life. If there is no clinical evidence of improvement after a few days of sulfonamide therapy, it should be discontinued. If improvement is obtained the established dosage should be administered. (Mengert.[31])

It is important to differentiate early in the course of the infection between potentially mild and severe cases. Fever from septic endometritis usually appears on the second to the fourth day of the puerperium. It may or may not be associated with chills and rapid pulse. In general, severe infections produce a high fever and tachycardia early. The amount and character of the lochia has no dependable clinical significance. It may be slight and odorless or profuse and fetid in severe infections and may have the same characteristics when the infection is relatively mild. Every possible attempt should be made to identify the offending organism before deciding upon the type of chemotherapy to be used.

Mixed infections are common. One organism may be susceptible to the drugs and others may not. Therefore adequate supplemental therapy should be employed in order to overcome the bacteria present that are not susceptible to the specific therapy being used. The advent of new chemotherapeutic agents in the cure of certain diseases is no reason for the abandonment of other forms of therapy which have proved their value. Symptomatic treatment must still be recognized as important and vital.

In the presence of localized abscesses chemotherapy is entirely inadequate unless supplemented by correct surgical drainage of localized collections of pus. When adequate drainage is not possible, cure by chemotherapy is problematic.

SULFONAMIDES IN PREGNANCY

Sulfathiazole administered before delivery has been found in the blood and amniotic fluid of the fetus, but a definite relationship between sulfathiazole levels in the mother and child has not been established.

Because of possible toxic effects to the baby there has been a reluctance to give large doses of sulfonamides to pregnant women, particularly during the last weeks of gestation.

Deakin and Smith[33] in reporting results obtained in the treatment of fifty unselected cases of gonorrhea in women, emphasize the fact that six of these women were pregnant and have been delivered and have shown no evidence of gonorrhea since delivery. Each of them received 4 gms. of sulfathiazole daily for five days. Apparently the babies suffered no ill effects. They make the statement that prior to the advent of this type of therapy, every woman on their service having gonorrhea who delivered as a ward case developed an acute postpartum salpingitis.

Stewart and Pratt,[10] Adair, Hesseltine and Hac[1] and others have studied the transmission of sulfonamides to the baby through breast milk and have concluded that approximately 1½ per cent of the total amount given to the mother is excreted in breast milk. Therefore, the amount obtained by the baby from this source has no clinical significance. Unless there is another reason for removing the baby from the breast, nursing may continue during treatment of the mother.

LOCAL INFECTIONS

Vaginitis.—I have obtained encouraging results in the treatment of acute and chronic vaginitis with sulfathiazole. The offending organisms have not always been accurately identified. This treatment was suggested first by Dr. W. L. Allee of Eldon, Missouri, in a personal communication, in which he stated that he had been using this method of treatment for several months with excellent results. It has been employed in treating all types of vaginal infections. The method is as follows: Approximately 3 gms. (45 grs.) of sulfathiazole powder is instilled into the vagina by insufflation two or three times weekly. During the interim the patient is instructed to take a daily douche containing two tablespoonfuls of vinegar in two quarts of water, to be followed by the insertion of a capsule containing 10 grs. of sulfathiazole powder. No other treatment is used. The vagina is not cleansed before insufflation. Caking of the powder is not a factor. The procedure is carried out for a period of two weeks even though local signs of inflammation usually disappear by the end of the first week. A total of twenty-seven patients have been treated in this manner to date. The results are encouraging.

Cohen, Steer and Adler[20] report 1,070 examinations which were made on 234 patients having gonorrheal vulvovaginitis. They found that 50 per cent of the untreated cases underwent spontaneous cure within thirteen weeks. Sulfanilamide cured two thirds of the hospitalized patients within two weeks. Sulfapyridine produced negative cultures promptly. There were recurrences in less than 10 per cent of the cases. Children receiving amnioton and stilbestrol showed only slightly better results than those receiving no treatment. Sulfapyridine was more effective than sulfanilamide in the cure of concomitant infections of the rectum. They believe that contact with the source of infection in either children or adults must be intimate before the disease can be transferred. Sulfathiazole and sulfadiazine should produce still better results.

Absorption of sulfonamide compounds into the blood stream following local application to the vagina does occur but not in amounts sufficient to produce a systemic effect. (Bickers.[41]) The higher concentrations are found in children with acute vaginitis.

CERVICITIS

Flagg and Koenig[10] have used sulfathiazole locally in the treatment of chronic cervicitis. They say "the local application of sulfathiazole to the cervical canal has proven to be more effective in the treatment of chronic infections than the administration of four times the dosage by mouth."

The type of infection is not a factor. In four cases it was due to chronic gonorrhea, two following childbirth and two following abortions, while in five the cause was unknown. The length of time that had elapsed before starting treatment was not a factor since in one case the infection had existed for twelve years.

In four cases associated with adnexal inflammation (probably a chronic pelvic cellulitis) an equal improvement in the adnexal pathology was observed following local treatment to the cervix. Complications were few although the first application of the drug seemed to produce a temporary mechanical irritation quite apart from the pharmacologic reactions observed.

PROPHYLAXIS

Indications for the prophylactic use of sulfonamides in obstetrics and gynecology have not been definitely established.

Winzeler[9] tested the prophylactic use of sulfathiazole by daily administration of the drug for a period of five days before delivery in 320 normal women. Comparing this group with an equal number in a control group, no difference could be noted. The use of sulfathiazole prophylactically in normal delivery therefore does not seem to be indicated.

Sulfadiazine is used routinely by well qualified observers[36] in potentially infected parturients following delivery, also in prenatal cases showing pus or bacteria in the urine, even in small amounts. They believe this prophylactic measure is particularly indicated when a history of previous urinary tract infections can be obtained.

SUMMARY AND CONCLUSIONS

1. Certain specific information is essential before the sulfonamides can be administered safely and intelligently.

2. Unless used judicially and carefully, more harm than good may be the ultimate result.

3. A decision to use them should be based entirely upon etiologic and scientific considerations. The practice of using them at random or upon the least provocation should be condemned. They are not "cure-alls" by any means.

4. Until more is known about them, their employment should be reserved for those infections in which they have been proved to be effective.

5. They are not indicated for infections that can be eradicated by more simple and less toxic therapy.

6. Too large doses are dangerous and too small doses are ineffective.

7. It is important to know which compound is most effective against a given type of infection.

8. Sulfanilamide is gradually being replaced by newer and better compounds. Sulfapyridine offers no advantage in the treatment of obstetric and gynecologic conditions.

9. Sulfathiazole and sulfadiazine are more effective and less toxic than any of the other derivatives available at the present time.

10. Physicians should welcome the advent of these new drugs. They should be grateful for the results they help to obtain. Their potency should be respected and their limitations appreciated. They should not be exploited in any way; and they should not be expected to do any more than that which intelligent, thorough and conscientiously controlled clinical research indicates they are able to accomplish.

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VERNAL CONJUNCTIVITIS

A BRIEF REVIEW OF THE LITERATURE

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A comprehensive definition of this disease is given by Duke-Elder,[1] viz.: "Vernal conjunctivitis is a recurrent bilateral interstitial inflammation of the conjunctiva, of seasonal incidence and (as yet) unknown etiology, characterized by flat-topped papules usually on the tarsal conjunctiva resembling cobblestones in appearance, a gelatinous hypertrophy of the limbal conjunctiva, either discrete or confluent, accompanied by corneal involvement, and associated with itching, redness of the eyes, lacrimation and a mucinous or lardaceous discharge usually containing eosinophils." According to Fuchs[2] it was first described by Arlt in 1846 "who regarded it as a peculiar variety of phlyctenular conjunctivitis," and a year later Desmarres described it as perikeratic hypertrophy. Von Graefe described it as a gelatinous thickening of the limbus, and Hirschberg, in 1871, called it phlyctena palleda. In 1875, Saemisch referred to it as spring catarrh because of the increased activity of the disease during the warm seasons. In 1909, Axenfeld described the clinical and pathologic picture of the disease while Horner[3] "discovered the peculiar character of the tarsal conjunctiva, and thus completed the picture of the disease." Literature on ophthalmology is replete with monographs dealing with various phases of vernal conjunctivitis, therefore, only the more important ones will be mentioned or discussed.

Many theories have been advanced concerning the etiology of vernal conjunctivitis. Vetsch, in 1879, and Homer, in 1880, attempted to associate the disease with certain seasonal skin diseases such as psoriasis. Lymphatic adenopathy was proposed as a possible cause by von Michel in 1891, by Ticho in 1915, and by Terson in 1918. Autointoxication, nasal disease, arthritis, acid-base imbalance and syphilis have also been considered as etiologic factors. From 1930 to 1933 Pascheff, and in 1933 Toeres attempted to associate spring catarrh with tuberculosis. As sunlight may cause certain dermatoses, so Kreiblich (1904) and Dimmer (1905) advanced the theory that actinic light may cause the disease, especially limbic manifestations, since it was found to improve when affected eyes were bandaged. This concept, however, is disproven by the fact that "the disease seemed to bear no clear correspondence with the degree of exposure to light, tending, for example, to improve at higher altitudes where short-wave light is most in evidence."[4] Meves, in January of 1941, reported a case of an 11 year old girl with vernal conjunctivitis who also showed a light dermatosis of the uncovered parts of the skin. "Protection from ultraviolet rays resulted in definite improvement."[5] Axenfeld, in 1907, suggested the possibility of some sensitizer in the tissues which activated them to light. In 1920, Junius[6] suggested hematoporphyrin as the photosensitive substance. Colombo, in 1931, Korenewitch, in 1933, and Dedimos, in 1934, supported the theory that ultraviolet light caused the disease in "persons with certain constitutional idiocyncrasies."[4]

Vagotonia (Angelucci, in 1898) and endocrine dysfunction (Lagrange, 1922-1935, Santori, 1927, Lemoine, 1929, and others) have been weakly regarded as causative factors. In 1929, Mamoli[7] concluded from a study of thirty-five patients that "in the majority of such cases, there exists a vagotonia from suprarenal hypoactivity. Negative results from cutaneous tests with pollens and foods, and the absence of hematoporphyrin in the blood and urine, excluded allergy and photosensitization as possible causes. The greater number of cases were associated with vasomotor rhinitis." Guerra,[8] in 1930, rejected the theory of allergy as the origin of this condition and declared that "the pallor, hypotony and other manifestations point especially to a deficiency of suprarenal secretion."

Max W. Jacobs[9] in a paper read before the St. Louis Ophthalmic Society on October 24, 1930, concluded that "this study of the recent literature of vernal conjunctivitis shows that an effort has been made to explain the disease on the theory that the vegetative nervous system of such afflicted individuals is at fault. As we read these various reports, we feel more and more that the relationship of so-called vagotonia and the endocrine glands is such an intimate one that we cannot consider one without the other. The same is true of allergy. Any piece of investigation, to be of value, will have to take cognizance of all three factors. The published results of recent investigations are conflicting and do not permit of our coming to any definite conclusion. . . . In view of our present lack of knowledge concerning the etiology of this condition, one will hesitate to use therapeutic measures whose efficacy is still unproven."

Allergy in hypersensitive persons seems to have "the most evidence to support it."[4] A number of investigators, among whom were Lagrange (1922),

Read before the St. Louis Ophthalmic Society, October 24, 1941

Fort (1923), Townsend (1923), Lemoine (1925-1929) and others found that most of the "cases were pollen sensitive." Lehrfeld,[10] (1925-1932) was able to aggravate the disease in patients during winter months by instilling the irritating allergen into the conjunctival sac. He concluded, that "vernal conjunctivitis is a manifestation of the operation of an allergy, can be proved only after repeated experiments." One must be content, therefore, for the time being with the belief that work is along reasonable and conclusive lines. Duke-Elder[11] concludes that "the most plausible hypothesis is that vernal conjunctivitis is a conjunctival manifestation of an allergy, the irritating agent being dust aggravated by dry heat, occurring preferentially in vagotonic individuals; its general etiology thus resembles phlyctenular conjunctivitis but, whereas the latter is due to an endogenous bacterial intoxication, the former is exogenous and a-bacterial."

Weinstein[12] arrived at the conclusion "that in vernal catarrh the disposition and the shifting of the acid-base balance play an important role. The combination of vernal catarrh with bronchial asthma and the hypersensitiveness to certain pollens suggests that vernal catarrh belongs to the group of anaphylactic diseases. Therapy consisting of endocrine preparations from the parathyroid, suprarenal gland, ovary and testicle, also calcium solution and vitamin D, are indicated on account of dysfunction of the nervous system and the endocrine glands."

In a comprehensive monograph, Lehrfeld[13] concluded as follows: "Most assuredly, vernal conjunctivitis exhibits the clinical manifestations of an allergy. The negative skin reactions reported in the past are now giving way to positive ones owing to the improved methods of testing and the use of agents of varied and known strength. . . .

"Since the conjunctiva and cornea are closely allied to the skin, it is anticipated that the new refinement in skin testing will reveal a far greater percentage of positive reactions in vernal conjunctivitis. In other words, negative skin reactions obtained by the present method of testing do not disprove the allergic characteristics of this disease, but merely indicate that this particular type of allergy, like some sensitivities, awaits a more delicate biologic test."

In an interesting paper read before the American Academy of Ophthalmology and Otolaryngology, Alan C. Woods,[14] in 1936, wrote: "While an eosinophilia is not pathognomonic of an underlying allergy, it is either dependent on or closely related to protein absorption, and is usually found in allergic subjects.

"The assumption that an underlying allergy is responsible for vernal catarrh is strengthened by the experimental demonstration that the conjunctiva is susceptible of specific sensitization and by the histologic study of the follicles on the bulbar and palpebral conjunctiva. The follicle which appears on the eye near the limbus has the general histologic picture of a phlyctenule, which is rather definitely proven to be an allergic manifestation. The second type of follicle, appearing on the palpebral conjunctiva, consists of papillary swelling with proliferation of connective tissue, infiltrated with lymphocytes, plasma cells and eosinophils. This reaction is somewhat comparable to that seen in the bronchial walls in asthma and in the skin in eczema, and has been spoken of as an allergic reaction characterized by persistent granulation.

"In 1933, Lagrange and Delthil (Lagrange, H., and Delthil, S.: Les conjonctivites de nature anaphylactique. C. Doin and Cie., Paris, 1932) published a short monograph in which they accept the specific sensitization of the conjunctiva as a proven experimental fact. The classical allergic syndrome of vernal conjunctivitis is: (1) the clinical picture, the recurrences, and the associated itching; (2) the climatic and seasonal incidence; (3) the frequent association of vernal conjunctivitis with other allergic conditions such as asthma, hay-fever, urticaria, angioneurotic edema, etc.; (4) the absence of bacteria and inclusion bodies and the presence of eosinophils in the conjunctival secretions; (5) the cutaneous sensitivity and the positive Prausnitz-Kustner reaction to the specific allergin shown by vernal conjunctivitis patients; (6) the reaction of the affected conjunctiva first to adrenalin and second to the specific allergin; (7) the frequent association of endocrine disturbances and an imbalance of the vagosympathetic system.

"LaGrange and Delthil are firmly of the opinion that other factors influence the allergic diathesis of the affected individuals. These factors are heredity and endocrine disturbances. They believe disorders of the endocrine glands induce a secondary imbalance of the vagosympathetic system and that this predisposes to sensitization of the tissues and the resultant allergic reactions. They believe the conjunctival localization of the sensitivity and allergic reaction in vernal conjunctivitis is only another manifestation of the elective localization of cutaneous allergy, and possibly the direct exposure of the conjunctiva to the direct sensitization may be responsible for this."

Again in 1939, Lehrfeld and Miller[15] published their findings in a research on this disease and concluded with the following summary:

There is a definite family or personal history of allergy in patients with vernal conjunctivitis comparable with other forms of atopy.

There is a definite seasonal incidence.

The age group and sex incidence correspond to those found for other atopic states.

Laboratory studies reveal a large proportion of positive intradermal and ophthalmic reactions to the pollens and other antigens.

There is a definite increase in the eosinophils of the blood and a demonstration of these cells in the ocular discharge.

Epinephrine hydrochloride instilled in the eyes gives temporary relief from subjective symptoms.

There is a specific local hypersensitiveness of the conjunctiva without constitutional reaction.

The similarity between vernal conjunctivitis and other atopic diseases is striking.

Hansel[16] cites a number of observations by various clinicians in which a relationship is established between vernal conjunctivitis and various phases of hypersensitivity to pollens, house dust and asthma.

Gabrielides[17] refers to previous articles in which he laid stress on the presence of eosinophils in the conjunctival secretion, the tarsal granulations and the peripheral blood, and the occurrence of the disease in several members of a family. Since then, bacteriologic study has revealed nothing of importance. He reported that only children, as a rule, were affected, but that no child infected its parent and when the parent was affected previously, the child usually resembled in physical characteristics the affected parent. From this consideration, the author concluded that the disease was not a microbic affection. Experiments on an ape and two children showed that direct inoculation was impossible. Microbes, parasites and worms were excluded by careful examination of the secretions and excretions of the patients.

Duke-Elder[18] states that in England, France and Germany, the disease is rare and mainly of the palpebral type. It is especially common in Italy, the Balkans and Turkey, where the bulbar type is more prevalent. It is common in India, the tropics (Herbert, 1903-1907) and all over North and South America, especially in the uplands of Mexico (Gonzales, 1929). According to statistics by Posey in 1924, 60 per cent of the cases in the United States are of the palpebral variety and according to Lehrfeld in 1932, 55 per cent. Colored races are particularly prone to the limbal form of the disease. In the temperate zones patients are reasonably free from symptoms, while in hot countries symptoms persist the year round. Pathologic changes in the palpebral form "persist throughout the year in the bulbar type while they disappear in the autumn." It occurs most frequently between the ages of 6 and 20, rarely in persons more than 40 years. It is more frequent in males. No evidence of infectivity has been found and only a few cases of familial tendency have been noted.

Fernandez[19] stated that "the disease is not modified in those (spring) months; cases are frequently found in January, February and April." Examples of the modified course of the disease due to the special climate are reported.

According to Duke-Elder,[20] vernal conjunctivitis may start in one eye with mild involvement in the other developing more fully later, but the disease is always bilateral. In the palpebral form the palpebral conjunctiva of the upper lid is involved and rarely the lower. The fornices are never invaded. Several writers have reported implications of the plica. In the beginning of the disease, the conjunctiva becomes uniformly hyperemic with little secretion and intense itching. Sometimes the disease does not progress beyond this stage (Elchnig 1908). Later the milky appearance of the conjunctiva described by many authors becomes evident. Hard, flat papillae usually appear. These are arranged disecretely or in clumps over the tarsal surface of the lid. These may be pale to quite red and, as they develop, become flattened and the "milky veil" more pronounced in the furrows between the papillae. This cobblestone arrangement is found only in the tarsal area of the upper lid. Still larger cauliflower appearing formations with deep fissures between them may develop due to marked hypertrophy of the papillae. The heavy thickened lid droops and may cause mechanical injury to the cornea. A deep, capillary network of blood vessels is formed in the affected area with another superficial one connected by perpendicular branches. "Each large cobblestone elevation shows several of these vascular centers, demonstrating their origin as a papillomatous-like confluence of several papillae" (Axenfeld, 1909, Cuénod and Nataf, 1934). White chalky concretions appear later (Uhthoff, 1920).

The secretion usually is scanty in amount but thick and lardaceous and of a dirty white color. It can be removed easily without leaving a bleeding surface. Its composition is mucus, epithelial cells, mononuclear and polymorphonuclear leukocytes, and in over 70 per cent of the cases there is a large number of eosinophils. Wolfrum, in 1921, determined its alkalinity as pH 80.

During the spring and summer of 1910, Brown Pusey[21] examined Giemsa-stained smears taken from the conjunctivae of his clinic and private patients who had conjunctivitis. Many of the latter were of unknown cause and had no bacterial findings. He found eosinophil cells in smears from these patients and, clinically, they agreed in many ways with descriptions of vernal conjunctivitis in standard textbooks. Judging from his findings, Pusey believed that papillae are absent in many cases.

Duke-Elder[22] states that the limbal type is characterized by one or more yellowish vesicles which may coalesce if numerous. These may form at any part of the limbus and new crops appear as others recede so long as the seasonal duration of the disease. Most commonly the nasal or temporal limbus is involved. Rarely a complete ring may be formed. The vascular loops which exist during the active stage disappear with the disease. The corneal epithelium may be invaded by the vegetation with destruction of Bowman's membrane (Pascheff, 1932). In 1903, Fuchs described a pannus-like membrane. Numerous authors have described interstitial lesions resembling those of sclerosing keratitis. Ulcers do not occur.

Dystrophies of the cornea due to the nutritional interference are of various kinds, the most common being the epithelial variety in which "the cornea

appears as if it had been dusted with flour."[22] Discrete opaque dots in small areas may be noted in the epithelium. Degeneration and necrosis may develop in the epithelial layers and are thought to be caused by direct trauma. Jackson, in 1918, and others have described a peripheral interstitial degeneration, appearing as a white band concentric with the limbus and with a clear area of cornea between it and the limbus. Softening of the cornea with resultant keratoconus has been described by Gonzales[23] occurring in a 10 year old girl consecutive to vernal conjunctivitis of long standing.

Saemisch (1875), Herbert (1903) Schieck (1904), Goldzieher (1906), Thaler (1906) and Hoffman (1925) have published papers on pathologic investigations of vernal conjunctivitis. "They comprise essentially a hyperplasia of the fibrous tissue as a primary feature succeeded by a hyaline degeneration and associated with a proliferation of the epithelium as a secondary process."[24]

The palpebral type is characterized by an overgrowth of subconjunctival tissue as well as that of the tarsus. The fibrous stroma of the papillae extends up toward the epithelium. The papillae enlarge and consist almost entirely of dense fibrous tissue with few round and spindle-shaped cells, accompanied by formation of new blood vessels and infiltration of lymphocytes, plasma cells and the characteristic eosinophils. Hyaline degeneration begins early. Fatty and calcareous degeneration have also been reported.

The normal two layers of epithelial cells in the conjunctiva are replaced by from five to ten or more layers. The milky appearance of the conjunctiva is produced by the thickening of epithelial as well as the underlying hyaline layers. Ingrowths from the epithelium into subjacent fibrous masses as solid rods on glandular processes with eosinophils appear as cell nests or cysts. Inclusion bodies also have been reported by Harvey Howard[25] and others.

Although the pathologic changes in the limbal type are essentially the same as in the palpebral form, Duke-Elder states that "the fibrous tissue proliferation is less evident than the enormous epithelial overgrowth into thirty or forty cells deep . . . the basement membrane is always intact."

Regarding the diagnosis in the palpebral type, essentially the tarsal conjunctiva of the upper lid is involved. The fornix never is invaded. In the early stages, a generalized hyperemia of the conjunctiva becomes manifest with little discharge but intense itching. The disease may not progress beyond this stage. Later the conjunctiva assumes a milky appearance. Hard, flat, papillae of various sizes develop in discrete or clumped formation of the tarsal conjunctiva but most numerous on the proximal border of the tarsus. The bluish, milky color is accentuated between the papillae (cobblestone appearance). The papillae may become hypertrophic and develop into large cauliflower-like excrescences with deep fissures between them of sufficient size to cause mechanical injury to the cornea.[26] Ptosis results from the thickening and heaviness of the lids.

According to Lehrfeld,[27] vernal conjunctivitis always appears from April or May to August and never begins in the fall or winter months. The condition may continue throughout the year as the palpebral type but never as the limbic type. The latter disappears during the winter months. He discribes three varieties: (1) simple follicular, (2) cobblestone, and (3) giant granuloma.

Although vernal conjunctivitis and trachoma may coexist, the characteristic features of each should make the diagnosis of either unquestioned. Likewise the limbal lesion may simulate a phlyctenule but biopsy will clear the diagnosis. Regarding differential diagnosis between vernal conjunctivitis and trachoma, Jackson[28] stated, "Trachoma begins insidiously, becoming manifest at any time of the year. Vernal conjunctivitis begins with a fairly distinct exacerbation in the spring or during hot weather. The relapses or recurrences of trachoma arise at any season, following ordinary conjunctival irritants. Those of vernal conjunctivitis are closely related to warm weather. The granulations of trachoma are deeply situated in the conjunctiva or beneath it in the deeper tissues. Those of vernal conjunctivitis arise on the surface and extend out from the normal surface, being often slightly pedicled. In trachoma they are apt to involve the retrotarsal folds. In vernal conjunctivitis they are situated almost exclusively on the tarsal portion of the upper lids, being most developed near the posterior edge of the tarsus. The skim milk film of vernal conjunctivitis is not seen on the lids in trachoma, nor are the scarred lids or altered tarsus of trachoma seen in vernal conjunctivitis unless caused by improper treatment. . . . In trachoma the discharge is proportioned to the acuteness of the process or depends on intercurrent inflammations. In vernal conjunctivitis, the discharge is proportioned to the size of the granulations and has a peculiar character. It is stringy, ropy, even almost cheesy in consistency rather than purulent. In trachoma microscopic examinations may show the inclusion bodies or the microorganisms of various forms of infectious conjunctivitis. In vernal conjunctivitis, overgrowth of epithelium sometimes arranged like a papilloma, and increase of eosinophils are the characteristic changes."

Intolerable burning and intense, persistent itching, aggravated by warm and humid atmosphere, are the outstanding symptoms with no direct relation to the degree of pathologic involvement. To this are added the lacrimation, photophobia and characteristic discharge. The symptoms are more pronounced in the palpebral variety.

The prognosis of vernal conjunctivitis is considered good insofar that it usually disappears entirely after a number of seasonal attacks. Saemisch

reported a case of twenty-three years standing and Posey one of twenty-one and another of twenty-four years duration. Prognosis, of course, may be altered by damaging complications, especially corneal involvements in the limbal type.

There is no specific treatment. None of the innumerable remedies which have been suggested and tried has been adopted universally. Seasonal change of climate from warm to cold is advisable. If impossible, protection of the eyes from dust, heat and sun by wearing of dark glasses is recommended by Duke-Elder.[29] Epinephrine and ephedrine are recommended. Frequent irrigation with a simple lotion to remove dust and discharge, cold boric acid solution followed by gr. 5 of monohydrated sodium carbonate to the drachm of water was recommended by Lehrfeld in 1933.

Hansel[16] quotes Lehrfeld thus: "the most important factor in treating these cases is the removal of mucous discharge from the eyes. He used 1 per cent holocaine for the relief of itching. In the limbic type, he advocates the use of zinc sulphate, 1 grain to the ounce. Boroglyceride is recommended for intense itching." More recently he recommended from 5 to 10 grains of sodium carbonate to the ounce followed by cold boric acid solution to dissolve the thick mucus and relieve the itching. Calcium gluconate internally markedly relieved the itching. In fifteen cases radium relieved the symptoms and reduced the extent of pathologic changes but did not cure the disease.

Calcium has frequently been given to combat the supposed deficiency in the blood, intravenously as afenil (Cordes, 1921), intramuscularly (Mamoli, 1930) or by mouth as the gluconate (Lehrfeld, 1932); but the results are by no means uniform (Ergtermeyer, 1921; Tobgy, 1933). D. J. Wood[30] observed "blood calcium deficiency in spring catarrh, conical cornea and malignant myopia. In spring catarrh, all cases showed a definite deficiency compared with the normal of 11 mg. per 100 cc. of blood. Afenil was used in the earlier cases with the result that in the pericorneal type the thickening disappeared within three weeks. Lid types took longer. Later he combined the calcium administration with parathyroid extract. These conditions usually present themselves at a time in life when there is a great demand for lime salts by the bones of the body. Underlying this, there is an endocrine imbalance, possibly between the ovaries and parathyroids. The former permits release, the latter tends toward retention of calcium in the blood. The author associates lack of lime salts with certain types of conical cornea. He cites one case in which calcium registered 7.5 mg. The method of quantitative estimation of calcium content of the blood is given." Wachtler[31] tried 10 cc. of 10 per cent chloride of calcium intravenously on three cases. In one of these cases, the conjunctiva was smooth and the distressing symptoms had disappeared entirely after nine days.

In 1915, Jackson[28] stated that "Probably for a radical cure, where such a treatment is available, repeated exposures to the roentgen ray, or to radium, are our most valuable therapeutic measures." With reference to the latter Allport states that of at least fifteen cases treated with roentgen ray exposures in a dozen years, "they have all been cured, that is, all who have carried the treatment through to the end.

"Butler has obtained equally conclusive results through applications of radium and Mackenzie-Davidson, who applied the treatment for him, stated that all of the cases which he had treated thus had been completely cured.

"For prophylaxis or the prevention of recurrences, residence in a cool, moist climate during the hot portion of the year has proven reliable. Such a climate is found on the coast of Maine, among the lakes of Canada and the Northern United States and in the region of Puget Sound or Alaska. It may be found in some mountain climates but apparently it is quite as important to avoid dryness of the atmosphere as to avoid heat."

Other suggested remedies include the local application of mercury ointment (Arlt, 1846), acetic acid, lactic acid, 10 per cent (Tontscheff, 1929), chaulmoogra oil, (Tobgy, 1933), adrenalin and phenocain (Luedde, 1920), subconjunctival injections of adrenalin (Tessier, 1927-1929; Dedimos, 1934). In 1928, Trainor[32] reported a case of a boy whom he treated with pure trichloracetic acid with reduction of granulations and increased comfort. All of them are useful in some cases, some of them brilliant on occasions and quite useless in others.

Nine cases were reported in 1919 by W. H. Luedde[33] in which aqueous solution of thiosinamine sodium salicylate, also known as fibrolysin, proved to be "eminently satisfactory."

Rubino and Simonelle[34] in 1940, reported twelve cases of vernal conjunctivitis treated with vitamin C by mouth and intramuscularly in which "the subjective symptoms improved rapidly and vegetations were either greatly reduced or entirely cleared up."

Radiational treatment has received much attention. Ultraviolet light is usually valueless (Duke-Elder, 1928; Hume, 1928, and others), but radium has met with a considerable amount of success and in gross palpebral lesions is probably the most hopeful method of treatment. The radium is applied over the everted lid, three or four treatments being given at four to six weeks' interval (Davidson and Lawson, 1909; Schnaudigel, 1912; Janeway, 1920; Onfray, 1924; Land, 1924; Cordes and Horner, 1928; Robinson, 1921; Riggins, 1929; Escudero, 1929, and many others.)

If the vegetations are large, surgical methods may be resorted to. J. Strebel,[35] in 1930, under local anesthesia and with a contact glass protecting the cornea, reported his method of treatment of the vegetation. The everted lid "is sprayed with ethyl chloride until frozen and the nodules snipped off

with scissors." The base is then cauterized with a thermocautery.

Goldstein, 1934, recommended excision of the tarsus and the mucous membrane, in whole or in part, while the raw area may, if desired, be covered by a graft from the lower lip. J. W. May[36] reported a case in 1925 in which he performed tarsectomy in a cobblestone variety of the disease with marked improvement of the symptoms and ptosis. As for general treatment, Duke-Elder[29] states that those authors who believe that the disease is a constitutional diathesis of vagotonia and glandular deficiency advocate treatment directed to remedy this. Injections of splenic extract have been advised by Soroour (1932) to neutralize the tendency to eosinophilia; of adrenalin to counteract the adrenal deficiency of vagotonia (Mamoli, 1930), intramuscular autohemotherapy to change the general constitutional reaction (Ferla, 1925; Cassimatis, 1929), and the administration of preparations of ductless glands of all kinds and descriptions to rectify their imbalance, thyroid, parathyroid, testicular, ovarian and so on (Mamoli, 1930, and others).

Gonzales[37] describes roentgen ray technic employed in the treatment of vernal conjunctivitis with several case reports. Fifteen days after roentgen ray treatment "regression of the lesions of the limbus and tarsus" begins. "If after three weeks or one month the improvement has not been very marked, a new exposure of the eyes is made to roentgen radiation."

Sanford Withers[38] stated that the "granulations could easily be caused to disappear under beta-radiation."

"Treatment with radium," according to Jacobs,[9] "has given such satisfactory results in the past that for the present at least it will undoubtedly continue to be our favorite weapon against the discomfort produced by this disease."

La Rocca,[39] in 1940, recommended carbon dioxide snow. He stated: "I devised a small container, consisting of a metal cylinder covered with wood, which acts as an insulator. The end of the cylinder is left uncovered, to be applied directly over the vegetations. Small pieces of solid carbon dioxide put in the container bring the temperature of the metal point to −80 C., which is the melting point of solid carbon dioxide. The point is held over the vegetation, after instilling a topical anesthetic in the conjunctival sac, for about forty seconds under moderate pressure, the applications being repeated until the affected surface is covered. The applications are repeated at weekly intervals."

In 1919, Gonzales[40] added this: "For many years I have insisted that vernal conjunctivitis develops an irregular astigmatism in eyes emmetropic before being affected by conjunctivitis."

CONCLUSIONS

After a digest of the literature on vernal conjunctivitis one must still consider its etiology unknown; however, the data brought forth by such men as Lehrfeld and Miller, LaGrange and Delthil and others and the numerous case reports which tend to substantiate the marked similarity of this disease with other atopic diseases, hypersensitivity of susceptible conjunctivae to certain antigens and linked with generalized hypersensitivity, probably are the stepping stones to a conclusive etiology.

Treatment still is symptomatic although careful consideration must be given to the atopic nature of the disease both from a prophylactic standpoint as well as that of a possible desensitization and to general therapeutic measures to regulate or correct these and collateral defects.

Carleton Building.

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CASE REPORT

POSTMORTEM CESAREAN SECTION FOLLOWING EIGHT MONTHS PREGNANCY TERMINATED BY ECLAMPSIA

G. R. PRESNELL, M.D.
KENNETT, MO.

The following case came under my observation on February 16, 1942.

P. Y., white female, aged 39, entered the Presnell Hospital, February 16, 1942, complaining of severe headache, dizziness, partial blindness and marked swelling of the feet, legs, hands and face. She was the mother of five children and had received no prenatal care during any of her pregnancies. She had not consulted a physician during the present pregnancy. She had suffered no discomforts or complications until three weeks before admission to the hospital.

Examination on admission revealed a pregnancy of approximately eight months duration. She was very nervous with twitching and jerking of the muscles of both upper and lower extremities and had had two convulsions before entering the hospital. The face, hands, legs, ankles and feet were markedly edematous. Vision was noticeably impaired. The heart and lungs were apparently normal. Blood pressure was 200/100, temperature 99.4, pulse 80, respiration 28. Urinalysis of a catheterized specimen on day of admission revealed the following: reaction acid, albumen 4 plus, sugar negative, pus cells 3 plus, with an occasional red blood cell, 1 hyaline cast and many granular casts.

The following treatment was started immediately: 50 cc. of a 50 per cent glucose solution given twice a day, fluid intake was restricted, 1 oz. of a saturated solution of magnesium sulphate given every hour. Codeine sulfate was given as needed to relieve headaches. Ice bags were applied to the head continuously. One ampule of magnesium sulphate was given intravenously twice daily. Upon admission, one ampule of salyrgan, intravenously, was given in an endeavor to increase urinary output. The first twelve hour intake was 535 cc. and the first twelve hour output was 323 cc.

PROGRESS NOTES

On February 17, 1942, blood pressure was 158/100, temperature 99.4, pulse 116, respiration 22 and patient was improved. Twenty-four hour intake was 2,680 cc. with output of 1,735 cc.

On February 18, blood pressure was 170/100, temperature 99, pulse 88, respiration 22. Edema of the limbs seemed to be less marked. Patient said she felt much better. Twenty-four hour intake was 1,230 cc., output 185 cc.

On February 19, blood pressure was 170/100, temperature 98, pulse 108, respiration 26. Lower extremities were still edematous. Patient's general condition seemed to be about the same. Twenty-four hour intake was 1,190 cc., output 355 cc.

On February 20, blood pressure was 180/108, temperature 97.6, pulse 100, respiration 24. Patient complained of headache, dizziness and nervousness. Her general condition appeared to be worse. She had had no convulsions since admission to the hospital. Twenty-four hour intake was 510 cc. and output 300 cc.

On February 21, blood pressure was 200/100, temperature 97.6, pulse 98, respiration 20. Edema of the feet and legs was more pronounced. Patient said she did not feel as well as she did the previous day.

On February 22, blood pressure was 200/108, temperature was 98.6, pulse 104, respiration 24. Urine showed acid reaction, negative for sugar, 4 plus albumin, many red blood cells and granular casts, no hyaline casts. Patient was rational but very nervous and complained of headache.

At 8:40 p. m. after telling her husband and a friend that she was feeling very well she had a severe convulsion, became comatose and was pronounced dead at 8:48 p. m., because both cardiac and respiratory activity had apparently ceased. While standing at the bedside talking to her husband, a movement in the lower abdomen was observed. Closer examination revealed this to be due to activity of the fetus. The husband was told there was a slight possibility of saving the child if a postmortem cesaerean section was done. Because there was another patient in the room, the "body" had to be removed to the operating room before the operation could be performed. This was accomplished as quickly as possible and a female child, weighing approximately 6 pounds was delivered at 8:58 p. m.

The condition of the baby was very grave, pallor was pronounced, the lips were cyanotic and respiration was absent. The presence of a heart beat was doubtful. A large amount of mucus and fluid was removed from the nose and throat immediately. Lobeline sulphate and caffeine sodium benzoate in small amounts were given hypodermically. Artificial respiration in the form of direct mouth to mouth breathing, alternated with intermittent manual compression of the chest, was started. Approximately two minutes later irregular, faint, heart tones could be heard and an occasional sharp respiratory excursion was observed. Another one half ampule of lobeline sulphate was given hypodermically and artificial respiration continued. Ten minutes later heart beats were regular, stronger and very rapid and the child began to cry lustily.

The baby was cleansed with warm oil and placed in an incubator. Oxygen was administered for thirty minutes, then discontinued. Respirations were slightly irregular and fetal movements were jerky for approximately twelve hours, then became normal. In all probability this was the result of too much hypodermic stimulation. Otherwise, two hours after birth the child appeared to be normal.

It was kept in an incubator for thirteen days, then removed to a crib in the nursery. At the present time (one month later) the baby is doing nicely, takes and retains from 3½ to 4 oz. of formula and weighs 6 pounds and 1 ounce.

SUMMARY AND CONCLUSIONS

1. This case helps to emphasize the importance and significance of good prenatal care.

2. Although the patient's previous five pregnancies were apparently normal and uncomplicated, it is quite possible that some form of toxemia had been present but, because she had no prenatal care, the condition was not detected. Preexisting kidney damage might have contributed considerably to the fatal termination.

3. A patient who appears to be doing nicely with subsiding symptoms of eclampsic toxemia may suddenly go into convulsions and expire.

4. Immediate postmortem cesarean section possibly may save the baby.

Presnell Hospital.

"There is no known relationship between intelligence and the presence or absence of wisdom teeth," *Hygeia, The Health Magazine* declares in a recent issue. "Apparently the notion that such a relationship exists is based on the fact that the wisdom teeth generally come into place in the jaw at the age when mental powers are fairly well developed."

SPECIAL ARTICLE

REDUCTION OF FACIOCRANIAL AND MANDIBULAR FRACTURES

GROVER C. SMITH, D.D.S.

ST. LOUIS

A series of two hundred fracture cases comprising one hundred fractures through the body of the mandible at various places, fifty through the mandible behind the teeth and fifty faciocranial fractures form the basis for this discussion. Three different forms of reduction were used in the three types of cases. The technic of casting splints, making caps, the diet and postoperative treatment will not be discussed.

Oral prophylaxis is so necessary that it should be considered a part of the reduction operation for, when the mouth is wired shut with fracture lines compounded into it and traumatized tissue and loose teeth present, a perfect incubator is created.

All fractures should be reduced as soon after the injury as possible. Delayed reduction and retention leads to infection and compounding. There is little pain and swelling when a fracture is reduced within six hours after the injury. Teeth in line of fracture that have been devitalized should be removed as they will cause infection before union begins.

Fractures through the body or the symphysis of the mandible cause less trouble than other fractures if the patient has a few teeth, above and below, solid enough for retention form. If there is not a sufficient number of teeth for direct wiring into occlusion the orthodontia band and arch are applied. The bands are tightened around the posterior teeth with a bolt containing a sleeve through which the arch bar is passed and wired to the anterior teeth and used for wiring the upper and lower jaws together and holding the teeth in occlusion. In comminuted fractures the mesiodistal traction should be applied before the teeth are wired into occlusion.

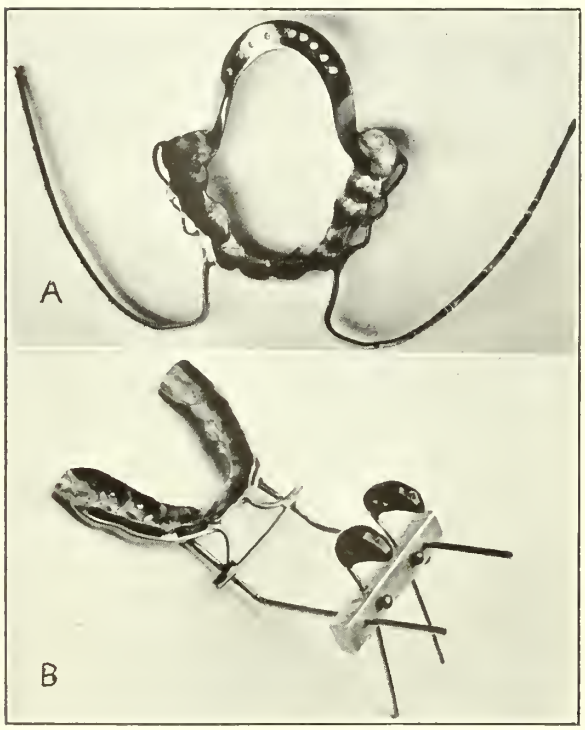


Fig. 1. A. A second class lever used for a faciocranial fracture (shown in place in fig. 2). B. A third class lever, the teeth being used for the retention of the splint (shown in place in fig. 3).



Fig. 2. A second class lever (fig. 1A) in place for treatment of a faciocranial fracture. The splint is cemented to the upper teeth for retention.

Fractures of the mandible behind the last tooth have been the most troublesome of all mandibular fractures, depending, however, upon the line of fracture. Some fractures behind the last tooth heal better if left alone. The Barton bandage should not be used for permanent retention. It is of great value for the first few hours while the patient is being conveyed to the hospital, but for no longer. The mandible is the only movable bone about the head and has a greater number of muscular attachments than any other bone. Regardless of what movement the patient makes, the Barton bandage will cause crepitation in the fracture line which will lead to nonunion and sometimes osteomyelitis.

I have classified fractures behind the last tooth into mesiodistal, oblique and distal mesio-oblique. The distal mesio-oblique fractures need little care as the line of fracture begins on the anterior border of the ramus or the upper part of the body of the mandible and extends downward and forward to the lower border of the body. The short fragment is elevated by the muscles of mastication and usually reduces the fracture. Therefore, immobilization of the body of the mandible by wiring a few teeth into occlusion is all that is necessary. But the mesiodistal line of fracture is a different problem. Immediately after the bone is fractured, the short fragment turns and compounds into the mouth. The muscles of mastication continue to pull up on



Fig. 3. A third class lever (fig. 1B) in place in case in which splint is to be used for the reconstruction of a nose, showing cartilage planted beneath the skin on the forehead and the flap cut on the neck.

the short fragment and widen the fracture line. Wiring the teeth into occlusion helps some and sometimes union takes place leaving a large hump behind the last tooth.

Posterior retraction, i. e., exposing the bone at the angle of the jaw and drilling a hole through the buccal surface lingually and passing a wire through which is attached to a stationary bar behind the neck extending down from a plaster of paris cap on the head, is seldom successful. It is difficult to keep in alignment as the cap may be moved while the patient is asleep or moved by the patient to get relief from pressure on some bony prominence and a large ugly scar results. Of course, union eventually takes place. If an incision and a hole drilled through the bone are necessary, it is better to make the incision under the line of fracture and drill the hole through the mesial end of the short fragment and the distal end of the long fragment, pass a twenty-four gauge soft stainless steel wire through the holes and, with the aid of the assistant pressing the short fragment down within the mouth and lifting the body of the mandible up, the wire can be twisted so that the fracture line is closed. The wire may extend down about one inch below the border of the mandible. The wire should not be bent as it will open the incision if much swelling follows the operation. The wire will act as a drain and can be removed after union has taken place. There are a great many other things to be done in an operation of this kind but I am confining this discussion to reductions and their retention form.

A transverse fracture usually stays in place upon wiring the teeth into occlusion after reduction. I think 80 per cent alignment should be accepted as normal in fractures of this kind.

Premedication is extremely necessary in reduction of faciocranial fractures because of postinjury shocks and possible linear fractures extending into the vault.

The fracture line of faciocranial separation is an irregular horizontal line extending across the face below the skull. The most common form extends through the nasal bones at the base, downward and through the floor of the orbit, the vomer and sphenoid bones, laterally through the malar bones on either side. The maxillae may or may not be displaced posteriorly.

Reduction of faciocranial fracture is done by the use of elastic traction applied from the lift arms of a splint on the upper teeth to a canvas or plaster of paris cap on the head. The technic is to cast a splint of stable metal for the upper teeth and attach to the side arm with proper tensile strength and Brinell hardness to stand the pull of elastic traction and a strong canvas cap well tailored to fit the skull. Elastic traction is applied to the lift arms and the cap. This form of reduction is indicated in cases in which there is no posterior or lateral displacement of the maxillae.

In cases of posterior displacement or impaction of the maxillae, a plaster of paris cap is indicated to allow attachment of a long iron bar with sufficient temper, extending over the head down the median line in front, about one inch from the end of the nose to a point below the incisal end of the upper anterior teeth. This furnishes a downward and forward pull when traction is applied to the arms of the splint to move the maxillae forward.

Many practical difficulties interfere with successful employment of the faciocranial splint. The making of the splint requires two days of time, involves some expense and demands considerable experience.

The upper teeth are the only stationary retention form about the head and if the proper splint is applied it can be used for most any kind or reconstruction work about the face and head.

Vertical fracture lines through the hard palate are found in about one third of faciocranial separations, usually the nasal bones are depressed with comminution, and the zygomatic arch may or may not be fractured. In casting a splint for these cases a

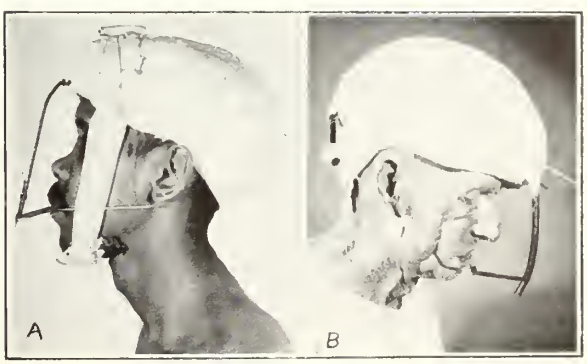


Fig. 4. A. Faciocranial and mandibular fracture, showing forward and downward traction for posterior impaction of the maxilla. B. Anterior and posterior retraction for loss of continuity (see fig. 5).

palatal bar is cast to the posterior ends of the splint to prevent the expansion of the maxillae when traction is applied to the lift arms of the splint and the cap on the head.

I think knowledge of the lever principle is as important in the construction of splints as the anatomic knowledge of the face and head in the reduction of fractures because splints act as retention form, therefore, reduction of fractures without retention would be unthinkable.

Taking impressions of the teeth which are generally loose, should be done with great care. Plaster of paris cannot be used or any other crystallizing material. Even modeling compound gets too hard in some cases. Dentocoll, with the special trays and water cooling system, is much easier on the patient. The soft material releases from the teeth readily without pain to the patient and gives a true impression of the teeth and palate and does not break into pieces when removed.

When the splint has been cemented to the teeth and the cap taped to the skull, elastic traction may be applied, but with great care and caution. If too much pressure is applied the patient's fever will advance as much as four degrees in a few hours and the immediate removal of all pressure is the first thing to be done. Light traction must be applied at first and increased in accordance with the patient's comfort.

In about five weeks, sufficient union will be present to remove the splint and articulate the teeth. This must be done before complete union of the fracture line. Articulation of the teeth is important and can be done with the split shot and elastic traction method, or wiring the teeth directly into occlusion which helps to establish the normal vertical and lateral dimensions of the face. The former system of hurrying to get union as the only thought results in a dish face, protruding on one side, with one orbit larger than the other.

It is easy to raise a depressed nasal bone when the plaster of paris cap and bar are used, by extending a twelve gauge tempered wire from the cap to the bar on either side. A small thirty gauge soft stainless steel wire can be attached to a small hard rubber tube inside the nose and passed through the fracture line to be attached to the twelve gauge cross bar for elevation into alignment.



Fig. 5. Roentgenogram of figure 4B showing displaced fragment, loss of continuity and wire through symphysis for traction.

634 North Grand Boulevard.

WARNING ON "ATHLETE'S FOOT" TREATMENT

Until the conclusion of studies to determine the extent of the causticity of a mixture of phenol and camphor, recently hailed as "A Working Cure for Athlete's Foot," and its possible benefits and dangers, "treatment of 'athlete's foot,' ringworm and other fungous infections (with this mixture) or any other potent remedies is best intrusted to the qualified physician," *The Journal of the American Medical Association* warns in its May 9 issue. It has been warned that the mixture should not be applied to a wet skin since water has been reported to make it caustic.

Pointing out that most cases of fungous infection require persistent skilful attention if the disease is to be brought under complete control, *The Journal* says that "recommendation that untrained people use on themselves an agent which has the potential danger of causticity is highly doubtful."

"So far as is known, it has not been established that chewing gum is of practical value in cleaning the teeth," *Hygeia, The Health Magazine* says in a recent issue in answer to an inquiry. "Certainly it does not 'whiten the teeth,' in the proper sense of that phrase. In commenting on one brand of chewing gum the Council on Dental Therapeutics of the American Dental Association stated: 'It is possible that chewing gum may remove food particles that are suspended in saliva, but the efficacy of chewing gum to remove food particles which adhere to the teeth has not been demonstrated by carefully controlled evidence.'"

HYGEIA AUTHORS TELL OF ARMY AIR FORCE PHYSICAL TRAINING PROGRAM

It has been estimated that many more aviation crashes are due to defects in pilots than to mechanical failure, James E. Pixlee and E. K. Gubin, Washington, D. C., declare in *Hygeia, The Health Magazine* for June. "The training section of the Army Air Force," they explain, "is determined that no error due to faulty physical condition will occur on the part of any one while Army aviators are in training.

"The physical training program is not designed solely to build muscle, although one of the important results of this program is the maintenance of the organic vigor of trainees. In addition, the well rounded athletic program of the Air Force reduces nervous and mental tensions, develops neuromuscular coordination, skill and stamina, keeps up the morale of the cadets and otherwise prevents them from going stale from the arduous aviation training program they must undergo. Athletic games are used freely in the program, and to most of the men the physical training is real recreation rather than compulsory work.

"Coordination of physical training with flying instruction is accomplished by having a civilian physical training director stationed at Washington with the designation of Technical Advisor to the Chief of the Air Force. The physical training section is a subunit of the Air Force Training and Operations section. Approximately three hundred and fifty senior and junior civilian physical training directors comprise the present staff. . . ."

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JUNE, 1942

EDITORIALS

ANDREW W. McALESTER, Jr., M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL ASSOCIATION, 1942-1943

Dr. Andrew W. McAlester, Jr., Kansas City, was elected President-Elect of the Missouri State Medical Association by the House of Delegates at the Kansas City Session, April 27, 28 and 29. Dr. McAlester will serve as President-Elect during this year and will be installed as President at the St. Louis Session in 1943.

Dr. McAlester was born in Columbia, Missouri, the son of Dr. Andrew McAlester who was Dean of the University of Missouri School of Medicine for thirty-seven years and who served as President of the Missouri State Medical Association in 1889. Dr. McAlester received his preliminary education at Columbia and received A.B. and B.Litt. degrees from the University of Missouri. He received his M.D. degree from the University of Missouri School of Medicine in 1905, following which he studied ophthalmology in the Royal London Ophthalmic Hospital, London.

Early in his career Dr. McAlester became identified with organized medicine and has served the medical profession in many capacities. He was Secretary of the Missouri State Medical Association from 1907 to 1909 and was Delegate to the American Medical Association from 1905 to 1916 and from 1922 to 1924.

He began his practice in Kansas City in 1907. He was Professor of Ophthalmology in the University of Kansas School of Medicine from 1908 to 1912. He is now oculist to St. Luke's, Menorah and Research hospitals and is on the consulting staff of the Kansas City General Hospital where he formerly was chief of the eye service. He is oculist for the Chicago, Burlington and Quincy Railroad and the U. S. Compensation Commission.

Dr. McAlester is a Fellow of the American Medical Association and the American College of Surgeons and holds membership in the American Academy of Ophthalmology and Oto-Laryngology and the Kansas City Society of Ophthalmology and Oto-Laryngology.



ANDREW W. McALESTER, Jr., M.D.

During the last war Dr. McAlester was a Major in the Medical Corps attached to the Air Service in France.

Dr. McAlester operates a cattle farm near Liberty in Clay County in which he takes a great deal of pride.

Few men have lived as close to medicine and the medical profession as has Dr. McAlester. From his father he learned the creeds and ideals of the profession. He also learned the problems of the profession. While never losing sight of a high standard of medical practice, he has ever been cognizant of the necessity of organization. The members of the Association may well approve the selection by the House of Delegates of a President so well esteemed and respected by his colleagues and so well qualified to lead the Association during a troublesome time.

THE KANSAS CITY SESSION

The Eighty-fifth Annual Session of the Missouri State Medical Association which convened in Kansas City, April 27, 28 and 29, 1942, was an outstanding session. The scientific program was one of great value consisting of presentations upon many phases of medicine and medical practice by men well qualified in their various fields of medicine. Scientific exhibits were extensive and added much to the scientific value of the meeting. Commercial

exhibits presented the latest information on products used by the medical profession. The attendance was second largest in the history of the Association.

Dr. R. B. Denny, Creve Coeur, President, was unable to attend the session because of illness and Dr. Harry L. Jones, Kansas City, and Dr. M. D. Overholser, Columbia, Vice Presidents, presided at the scientific sessions. Dr. W. F. Francka, Hannibal, was elected Speaker of the House of Delegates and presided at the session of that body. Dr. John Green, St. Louis, was elected Vice Speaker.

Dr. H. L. Kerr, Crane, was installed as President at the Wednesday afternoon session of the House of Delegates and will preside at the 1943 session which will be held in St. Louis.

Dr. Andrew W. McAlester, Jr., Kansas City, was elected President-Elect and will be installed at the 1943 session and will serve as President during that year. Drs. R. M. James, Joplin; E. J. Schisler, St. Louis, and G. A. Lau, St. Joseph, were elected Vice Presidents.

Delegates to the American Medical Association elected are Drs. A. R. McComas, Sturgeon, and W. L. Allee, Eldon, with Drs. A. S. Bristow, Princeton, and J. E. Stowers, Kansas City, alternates.

Dr. R. L. Thompson, St. Louis, was reelected Treasurer; Mr. E. H. Bartelsmeyer, St. Louis, Executive Secretary, and Miss Helen Penn, St. Louis, Assistant Editor. Dr. Curtis H. Lohr, St. Louis, was reelected Chairman of the Council and Dr. W. A. Bloom, Fayette, was reelected Vice Chairman of the Council. Councilors were reelected to fill the expired terms of Councilors of odd-numbered districts as follow: First District, Dr. A. S. Bristow, Princeton; Third District, Dr. Curtis H. Lohr, St. Louis; Fifth District, Wr. W. A. Bloom, Fayette; Seventh District, Dr. F. I. Wilson, Kansas City; Ninth District, Dr. E. C. Bohrer, West Plains.

Past Presidents were guests of honor at a banquet on Monday evening at which Col. George F. Lull, M.C., Chief, Personnel Division, United States Army Medical Corps, Washington, D. C., spoke on "The Medical Officer in Our Wartime Army." The banquet was followed by dancing. In appreciation of the presentation by Colonel Lull, the House of Delegates adopted the following resolution:

Whereas, Surgeon General Magee, of the Army of the United States, has made a noteworthy contribution to the Eighty-fifth Annual Session of the Missouri State Medical Association by assigning one of his staff officers to speak to the assembly on "The Medical Officer in Our Wartime Army," and

Whereas, The information presented is of the utmost importance to every member of the Missouri medical profession, and

Whereas, This timely and interesting subject was presented by Colonel George F. Lull, M. C., Chief of the Personnel Division of the United States Army Medical Department, in a way which gave rise to much favorable comment, therefore be it

Resolved, That the impressive and distinguished manner in which Colonel Lull has fulfilled his assignment be officially commended and brought to the attention of the Surgeon General, and be it further

Resolved, That the Missouri State Medical Association express its grateful appreciation to Surgeon General Magee, of the Army of the United Staes, for his fine coopcration and willing efforts in behalf of the medical profession of the State of Missouri.

The Jackson County Medical Society proved itself most hospitable and efficient throughout the session. On Tuesday evening members of the Association were entertained at a Smoker and Buffet dinner and entertainment.

The Committee on Maternal Welfare and Infant Care held its annual meeting Monday noon with Dr. Willard R. Cooke, Galveston, as its guest. Round table luncheon meetings on Tuesday and Wednesday gave members opportunity to present questions to the guest speakers.

Following his installation as President, Dr. H. L. Kerr, Crane, made the following appointments to committees: Scientific Work, Drs. Harry C. Lapp, Kansas City, Chairman; Nathan A. Womack, St. Louis; Dudley S. Conley, Columbia; Stanley P. Howard, Jefferson City; B. C. Trowbridge, Kansas City. Postgraduate Course, Dr. C. H. Neilson, St. Louis, Chairman. Public Policy, Drs. James Stewart, Jefferson City; R. M. James, Joplin; D. M. Dowell, Chillicothe. Cancer, Dr. E. Kip Robinson, Kansas City. Defense, Dr. C. E. Hyndman, St. Louis, Chairman. Medical Education and Hospitals, Drs. L. W. Dean, St. Louis, Chairman; F. T. H'Doubler, Springfield. Medical Economics, Dr. Ira H. Lockwood, Kansas City. Mental Health, Dr. Ralf Hanks, Nevada. Maternal Welfare and Infant Care, Drs. Ralph R. Wilson, Kansas City, Chairman; Joseph D. James, Springfield; Irl B. Krause, Jefferson City; W. Roger Moore, St. Joseph. Health and Public Instruction, Drs. D. A. Robnett, Columbia, Chairman; E. Lee Miller, Kansas City; A. J. Durant, Columbia. Constitution and By-Laws, Dr. H. L. Mantz, Kansas City, Chairman. Fractures, Drs. W. J. Stewart, Columbia; J. P. Murphy, St. Louis; F. G. Pipkin, Kansas City; D. L. Yancey, Springfield. Conservation of Eyesight, Drs. Winfred L. Post, Joplin, Chairman; George A. Hornback, Hannibal; G. J. Tygett, Cape Girardeau; C. R. Bruner, Columbia; C. Souter Smith, Springfield. Control of Venereal Disease, Dr. W. S. Sewell, Springfield. Industrial Health, Dr. H. I. Spector, St. Louis. Physical Therapy, Dr. F. L. Feierabend, Kansas City. Study of Medical Practice Laws, Drs. J. Milton Singleton, Kansas City, Chairman; Lee D. Cady, St. Louis; T. W. Cotton, Van Buren; E. D. James, Joplin, O. C. Gephart, Oregon; M. Pinson Neal, Columbia; E. L. Spence, Kennett. Medical-Legal Affairs, Dr. C. T. Ryland, Lexington. Tuberculosis, Drs. E. E. Glenn, Springfield, Chairman; George D. Kettlekamp, Koch; J. W. Stocker, Mt. Vernon. Rural Medicine, Drs. H. A. Lowe, Springfield, Chairman; T. W. Cotton, Van Buren; R. E. Breuer, Newburg. Medical Military Affairs, Drs. H. B. Stauffer, Jefferson City, Chairman; Charles D. Osborne, Sedalia; D. D. Stofer, Kansas City; James E. Stowers, Kansas City; T. P. Brooks, St. Louis. Adviser to Woman's Auxiliary, Dr. H. L. Mantz, Kansas City.

AMERICAN MEDICAL ASSOCIATION TO FEATURE INTER-AMERICAN PROGRAM

An Inter-American meeting, with papers presented by medical authorities of North, Central and South America, will be one of the highlights of the ninety-third annual session of the American Medical Association to be held at Atlantic City June 8 to 12.

Another highlight will be a meeting devoted largely to medical problems associated with the war in which several officials of the federal government associated with the war effort will participate.

During the five days of the session Atlantic City will become the medical capital of the Western Hemisphere. It is expected that between eight and ten thousand physicians will register at the session and that the total number of persons in attendance will be close to twenty thousand.

Gathered together at the session will be the sum total of the increased knowledge acquired during the past year regarding all phases of medicine and surgery. Through attendance at the session, physicians will be able to take back to their home communities the latest technics in diagnosis and treatment. Thus do physicians increase the effectiveness of their constant battles to protect and promote the health of the nation.

The ninety-third annual session will start with the convening of the House of Delegates at 10 a. m., Monday, June 8, in the American Room of the Hotel Traymore. The general scientific meetings will start at 2 p. m. Monday in the Ball Room at Convention Hall and will continue through Tuesday. The opening general meeting will be held at 8 p. m. Tuesday in the Ball Room on the second floor of Convention Hall and the sixteen scientific sections of the Association will start their programs Wednesday. Dr. Fred W. Rankin, Lexington, Kentucky, who will succeed Dr. Frank H. Lahey, Boston, as President of the Association at the opening general meeting Tuesday evening, will be honored with a reception and ball to be held Thursday evening, June 11 at 9 o'clock.

The Monday afternoon program of the general scientific meeting will be devoted to papers presented by outstanding physicians from Peru, Puerto Rico, Cuba, Canada and Mexico. The Tuesday morning program will be devoted to medical problems related to the war and the Tuesday afternoon program will feature papers related to the rehabilitation of disabled soldiers, high blood pressure, epilepsy, painful backs and an evaluation of the Kenny treatment of infantile paralysis.

Starting Wednesday morning, the sections of the scientific assembly will open their sessions and during the following three days more than three hundred physicians will share with their colleagues the results of their scientific research and experiences during the last year. Several papers will deal with chemotherapy, or treatment with chemicals, a field in which there has been great advancement during the last year. Three papers will deal with a dicoumarin compound which is investigated for its value as an anticoagulant. The substance is still in the experimental stage and is not yet available to the profession at large. The various drugs related to sulfanilamide will be discussed, not only from the viewpoint of treating such diseases as pneumonia and other infections but also their value in caring for wounds, with particular application to those associated with the war. There will be a symposium on the newer methods of treating infections of the sinuses.

Throughout the programs of practically all of the sections are a considerable number of papers dealing with various medical and surgical problems brought on by the war.

Of constantly increasing importance is the field of geriatrics. The entire Wednesday morning program of the Section on Ophthalmology will be devoted to some of the aspects of this subject.

The role of such synthetic sex hormones as stilbestrol and testosterone propionate in the treatment of certain diseases and conditions will be discussed in several papers. Various aspects of whooping cough immunity and other children's diseases will be discussed before the Section on Pediatrics. One paper will deal with the effect of cigaret smoking on nursing mothers and their babies. Symposiums on gastritis and the liver will be conducted at joint meetings of the Sections on Pathology and Physiology and Gastro-Enterology and Proctology.

Of particular importance will be the program of the Section on Preventive and Industrial Medicine and Public Health. Among the papers to be presented before this section will be ones dealing with gastrointestinal disease among industrial workers, results of the use of multiple vitamins for prevention of colds, rehabilitation in the Selective Service System, yellow fever, health problems in connection with war housing projects, civilian measures for the control of veneral diseases in World War II, and the results of a medical and nutritional survey of aircraft workers.

There will be more than 200 scientific exhibits, chief among the features of which will be the Pan-American ones dealing with tropical medicine. Special exhibits again will be presented by the Board of Trustees of the Association dealing with fractures and backache.

The Army, the Navy, the Public Health Service, the Selective Service System and the Office of Civilian Defense will have exhibits pertaining to their respective activities. An exhibit symposium on cardiovascular disease will be presented.

Lectures and demonstrations on infantile paralysis, under the auspices of the National Foundation for Infantile Paralysis and the University of Minnesota School of Medicine, and on diabetes will be presented continuously throughout the week in

two theaters adjoining the scientific exhibits in the Auditorium.

Each of the Sections of the Scientific Assembly will have a large number of exhibits sponsored by them. A large number of the exhibits will deal with various medical phases of the war, such as parachute injuries, the preparation and preservation of blood plasma, eye problems in national defense, shock, and diets and vitamins.

Missouri Delegates to the Session will be Drs. A. R. McComas, Sturgeon; W. L. Allee, Eldon; Robert E. Schlueter, St. Louis, and Rexford L. Diveley, Kansas City.

Missouri physicians who will present addresses are Drs. J. Milton Singleton and Herbert F. Vanorden, Kansas City; Robert Elman, Willard M. Allen, James B. Costen, O. P. J. Falk, Carl V. Moore, H. R. McCarroll, Adolph H. Conrad, Adolph H. Conrad, Jr., and Richard Weiss, St. Louis.

NEWS NOTES

Dr. Charles C. Dennie and Dr. Hugh L. Dwyer, Kansas City, were guests of the Oklahoma State Medical Association and presented addresses at the annual meeting in Tulsa, Oklahoma, April 22 to 24.

Dr. E. Lee Dorsett, St. Louis, was a guest of the Adams County (Illinois) Medical Society at Quincy, Illinois, on May 12, and spoke on "Complications Arising During the Third Stage of Labor."

The following officers for 1942 were elected by the Kansas City Association of Railway and Industrial Physicians and Surgeons: President, Dr. E. P. Heller; vice president, Dr. Carl H. Brust; secretary, Dr. H. L. Mantz; treasurer, Dr. C. G. Vincent.

Drs. E. Vernon Mastin and Fred. V. Emmert, St. Louis, will give presentations at the national assembly of the International College of Surgeons at Denver, July 15 to 18. Dr. Mastin will speak on "An Improved Operation for Repair of Inguinal Hernia" and Dr. Emmert will present "Colored Illustrations of the Gellhorn-Dickinson Technic for Vaginal Hysterectomy Under Local Anesthesia."

The Greene County Medical Society and the Missouri Tuberculosis Association held a dinner meeting at Springfield on March 28 for a conference on roentgen ray technic and interpretation. Seventy physicians attended. Dr. E. E. Glenn, Springfield, presided, and Drs. H. A. Rasmussen, Springfield; H. L. Mantz, Kansas City; N. R. Ziegler, Columbia; W. M. Kinney, Joplin, and J. A. Stocker, Mount Vernon, took part in the program.

Dr. Rex. L. Diveley, Kansas City, was a guest of the Nebraska State Medical Association at its annual meeting in Omaha, May 4 to 7, and spoke on "Emergency Treatment of Fractures—How to Handle Various Types of Fractures Before They Are Reduced."

The Missouri Chapter of the American College of Chest Physicians held a luncheon meeting on April 27 in Kansas City during the Annual Session of the Missouri State Medical Association. Dr. H. I. Spector, St. Louis, conducted an X-ray conference. The following officers of the chapter were elected: President, Dr. Paul Murphy, Koch; vice president, Dr. Sam. H. Snider, Kansas City; secretary and treasurer, Dr. J. A. Stocker, Mount Vernon.

DEATHS

Haning, Moses L., M.D., Browning, a graduate of St. Louis University School of Medicine, 1903; honor member of the North Central Counties Medical Society; aged 64; died January 9, 1942.

Sell, Wilmer J., M.D., Crocker, a graduate of the Central Medical College of St. Joseph, 1905; member of the Pulaski County Medical Society; died February 2, 1942.

Crane, Thos. V. B., M.D., Springfield, a graduate of Barnes Medical College, St. Louis, 1903; member of the Greene County Medical Society; aged 73; died April 10.

ORGANIZATION ACTIVITIES

CONTROL OF VENEREAL DISEASE

Upon recommendation of the Committee on Control of Venereal Disease, the House of Delegates at the Kansas City Annual Session adopted the following resolution which the Committee had adopted for presentation at a meeting on February 14:

Whereas, There is evidence to indicate that commercialized prostitution exists in accessible distance of military establishments of the United States with alleged official reliance upon "regulation" of houses of prostitution, including the medical examination of prostitutes, as an aid in preventing the spread of venereal disease, and

Whereas, This method has been proven many times in the past not only valueless but conducive to a false sense of security on the part of the public, thereby leading to increased exposure and increased venereal disease, and

Whereas, Despite modern advances in diagnostic methods a like result is as inevitable now as in the past, since a medical certificate of freedom from evidence of infection issued to a prostitute can apply only to the moment at which the examination was made and can give no assurance whatever of freedom from infection immediately thereafter, and

Whereas, The State Board of Health of Missouri has at considerable public expense conducted a program for the prevention and reduction of venereal disease and is continuously increasing its efforts in this direction, and

WHEREAS, The Missouri State Medical Association has a proper concern for the health of the men of the armed forces who are being trained in the many military establishments of Missouri as well as the health of the civilian residents of the State, and

WHEREAS, In the opinion of the Missouri State Medical Association, so-called "regulated" prostitution, which includes the medical examination of prostitutes and the segregation of districts for the purpose of prostitution, is as dangerous now as it has been in the past and will, wherever practiced, lead to increased exposure and increased incidence of venereal disease infection; therefore be it

Resolved, That the Missouri State Medical Association go on record as emphatically condemning all periodic medical "examinations" of prostitutes to the extent of dropping from its membership rolls any member who participates in this fashion in the illegal activities of prostitutes, and be it further,

Resolved, That, in view of the national interest involved, there should be a clearly stated policy established by the Chief Executive of the State of Missouri directing all state and local law enforcement agencies to suppress prostitution and the existence of any "segregated" red light districts in the state by the authority vested in them by Revised Statutes Missouri 1939, Sections 4394, 4395, 4397, 4398, 4401, 4402, 4403, 4681, 4682, 4683, 4690, 4691, and for cities of the first, second, third and fourth class, to pass or augment the force of such ordinances as authorized by Sections 6293, 6609, 6950, and 7169 to suppress prostitution, and to cooperate fully with military authorities in accomplishing this objective, and be it further

Resolved, That the Secretary send a copy of these resolutions to the Governor of the State of Missouri and cause the resolutions to be published in THE JOURNAL of the Missouri State Medical Association.

That any local, municipal system that encourages the giving of certificates to prostitutes that they are free from the venereal diseases "trifles not only with the health of its civilian population but also with that of the Army and Navy" is pointed out in an editorial in the *Journal of the American Medical Association* on April 18. The editorial follows:

"Invariably in past wars there has been an increase in the rates for the venereal diseases. The Annual Report of the Surgeon General of the United States Army for the fiscal year 1941 shows that the venereal disease rate increased in the recent prewar period of mobilization from 29.6 per thousand men in 1939 to 42.5 per thousand men in 1940.

"Infected persons in the civilian population, particularly prostitutes, are links in the chain of infection of the armed forces with syphilis and gonorrhea. Frequently the venereal disease rate in the Army and Navy is comparable to the incidence and prevalence of syphilis and gonorrhea in the civilian population in the area in which the armed forces are located. Therefore the civilian program for control of venereal disease must be maintained at the optimum effective level during war.

"The War Department is preparing to meet this problem. A venereal disease control officer will be assigned to each corps area headquarters to stimulate work against venereal disease. Furthermore, army venereal disease control officers will be appointed to each command with a strength of more than twenty thousand men. These new control officers will work with health departments and other civilian agencies. Attempts will be made to examine all contacts with infected men and to treat those who are found infected. The program will also include the strengthening of prophylactic measures, the provision of more adequate physical inspection to detect veneral diseases early, improvement in methods for the diagnosis and treatment of infected military personnel, provision of additional recreational facilities in cooperation with other military agencies, and intensification of the educational program.

"A cardinal principle of epidemiology in the control of communicable diseases is limitation of the number of contacts between infected, potentially infected and healthy persons. This principle applies in syphilis and gonorrhea as much as it does in other communicable diseases. Already there is evidence that some physicians have placed in the hands of irresponsible prostitutes certificates with the connotation that these women are free from the venereal diseases. The scientific evidence available indicates that certification of this kind is worthless. Any local, municipal system that encourages such certificates trifles not only with the health of its civilian population but also with that of the Army and Navy."

MISCELLANY

ARMY NEEDS 16,000 PHYSICIANS BY DECEMBER 31

Sixteen thousand physicians will be needed by the Army by December 31, five thousand of them being required at once, a special announcement by the Procurement and Assignment Service for Physicians, Dentists and Veterinarians states in *The Journal of the American Medical Association* for May 2. Discussing the announcement, an editorial in *The Journal* says:

"Under the heading of Medicine and the War in this issue of *The Journal* appears an official announcement from the Procurement and Assignment Service indicating that five thousand physicians are needed immediately for the Army Medical Department. The plan under which recruitment will proceed was developed at a meeting held in Washington on April 24. To this meeting all the state chairmen of the Procurement and Assignment Service of the states east of the Mississippi River were invited. A second meeting will be held in Omaha on May 8 for all the state chairmen of the Procurement and Assignment Service and representatives of the Army Medical Department of states west of the Mississippi River.

"The enrollment forms and questionnaires have been going steadily into the mails for more than a week. If, therefore, any physician fails to receive his enrollment form and questionnaire before May 9 he should write at once on that date to the National Roster of Scientific and Trained Personnel in Washington, requesting a duplicate form together with the letters of instruction. Reports from Washington indicate that those physicians who have received the enrollment forms have in a tremendous number of cases filled them out immediately and returned them, and the forms are pouring into the Washington headquarters. The complete functioning of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians demands the

complete cooperation of the medical profession. Since this organization was created to aid the medical profession in meeting the needs of the Army, the Navy and the civilian population, physicians should accept the responsibility and enroll immediately.

"The new form of recruitment does not apply to dentists and to veterinarians, since there does not exist any immediate shortage in these groups. It does apply particularly to the medical profession, since the Army still demands 6.5 doctors for every thousand men enlisted and since it will require more than eleven thousand physicians by January 1, 1943, in addition to the five thousand that must be enlisted immediately.

"The outline published under the heading of Medicine and the War gives information as to the rank which physicians may anticipate in relation to their ages and special qualifications. It will be observed that special clearance will be required on all physicians who are to receive advanced rank. For this purpose the special evaluations and classifications developed by the special committees of the Division of Medical Sciences of the National Research Council, the headquarters of the American Medical Association, the certifying boards and the special societies are being utilized.

"The winning of the war is a race against time. Among the agencies involved in the procurement and assignment of medical personnel are the headquarters of the Procurement and Assignment Service for Phycians, Dentists and Veterinarians, the consultant office in the headquarters of the American Medical Association, the personnel divisions of the offices of the Surgeon Generals of the Army and the Navy, the division concerned with the Air Force, the Corps Area Headquarters, the Corps Area offices of the Procurement Service and the state chairmen. There is much interlocking and intercommunication of these various agencies, which have been evolved rapidly to meet the current emergency. The complete cooperation of the individual physician is vital in securing the best results as far as concerns the provision of medical service for the armed forces and the civilian population."

The complete text of the announcement follows:

"The army has streamlined its method of commissioning medical officers. Five thousand physicians are needed at once. Eleven thousand additional will be needed by December 31, 1942. Army officers' recruiting boards will proceed at once to the office of each state chairman for physicians of the Procurement and Assignment Service, to get in touch with physicians personally and commission them immediately.

INSTRUCTIONS FOR PHYSICIANS WISHING TO ENLIST

"1. Return the procurement and assignment enrollment form and questionnaire which reached you last week. If you didn't get one, write immediately to the National Roster of Scientific and Specialized Personnel, 916 G Street N. W., Washington, D. C., for your forms.

"2. Contact your state chairman of physicians for Procurement and Assignment Service at once, stating that you want to get into the service. Do this regardless of whether or not you have written to the Washington office of the Procurement and Assignment Service or the Surgeon General or have enrolled on the emergency enrollment form of last December. If you applied for commission more than thirty days ago, tell the state chairman you want to see the recruiting board.

"3. The Surgeon General will not commission a physician unless he is certified as available by his state chairman of physicians for the Procurement and Assignment Service.

HOW COMMISSIONS WILL BE SECURED

"1. The Surgeon General and the Adjutant General have named teams of two officers and two clerks, who will procure the names of all available physicians who have volunteered from the state chairman for physicians of the Procurement and Assignment Service in your state.

"2. These teams will have the authority to make final decisions on the application forms, to procure and make final decisions on the physical findings and to administer the oath of office immediately to those who qualify physically and professionally who are under the age of 45 and who are to be given the rank of lieutenant or captain.

"3. These teams have the authority to initiate the applications and physical examinations and forward the papers with their recommendations direct to the Surgeon General for commission for all physicians under the age of 45 who might apparently be qualified for rank above that of captain.

"4. These teams will have the authority to initiate the applications and physical examinations and to forward to the Surgeon General direct the papers and their recommendations on all physicians 45 to 54 inclusive. The Surgeon General will make the final decisions and commission those for whom there are vacancies in this age group.

WHAT RANK MAY BE EXPECTED?

"In order that all concerned in the procurement of additional medical department officers may give uniform advice to all applicants, the following summary of the policies which broadly govern the recommendations to be made to the Adjutant General are published for your information and guidance.

"*(a) Basic Considerations.*—(1) Appointments in the Army of the United States (medical department) will be recommended by the Surgeon General to fill authorized position vacancies for which no qualified medical department officers are available. The recommended applicants must possess the special qualifications required for such positions.

"(2) Since no training or experience in civil life is analogous to that afforded by active military duty, no initial appointments will be recommended in grades above the lowest for assignment to tactical units.

"(3) Position vacancies calling for grades above the lowest will, so far as possible, be filled by the promotion of qualified officers on active duty.

"*(b) Policy Governing Grades for Various Sections.*—(1) Medical Corps: All appointments will be recommended in the grade of first lieutenant with the following exceptions:

"*(a) Captain: 1.* Eligible applicants between the ages of 37 and 45 will be appointed in the grade of captain by reason of their age and general unclassified medical training and experience.

"2. Below the age of 37 the following recognized training and experience will be considered in recommending initial appointments in the grade of captain: certification by an American specialty board; fellowship, American College of Surgeons or American College of Physicians; membership in other nationally recognized qualifying society or association, or the formal hospital training equivalent to that required by an American specialty board or other recognized training appropriate to the assignment for which recommended.

"3. Eligible applicants who previously held commissions in the grade of captain in the Medical Corps (Regular Army, National Guard of the United States, Officers' Reserve Corps) may be appointed in that grade provided they have not passed the age of 45.

"*(b) Major: 1.* Eligible applicants between the ages of 37 and 55 for whom there exist appropriate position vacancies, who are qualified for appointments as captain as outlined in paragraph (1) *(a) 2* and whose additional training and experience justify initial assignment as chief of service or section or executive officer in a large military hospital or other appropriate position, may be appointed in the grade of major.

"2. Applicants previously commissioned as major in the Medical Corps (Regular Army, National Guard of

the United States, Officers' Reserve Corps) whose training and experience qualify them for an appropriate assignment may be appointed in the grade of major, provided they have not passed the age of 55.

"*(c) Lieutenant Colonel and Colonel: 1.* In view of the small number of assignment vacancies in the grades of lieutenant colonel and colonel and the large number of reserve officers of these grades who have not been ordered to active duty, such appointments will be limited to specially qualified applicants required for specific position vacancies which cannot be filled by promotion or by the activation of qualified reserve officers.

"NOTE.—*a.* There are in the age group 24-45 more than a sufficient number of eligible qualified physicians to meet medical department requirements. It is on this age group that the Congress, through the Selective Service Act, has imposed the definite obligation of military service. Applicants beyond this age will be considered for appointment only if they possess the special qualifications required for assignment to positions appropriate for the grade of major or above.

"*b.* Appointments for assignment to affiliated medical department units are made under special War Department authorization, and in grades authorized by appropriate tables of organization on recommendation of the authorities of the sponsoring institutions.

Rate of Pay

	With Dependents	Without Dependents
Lieutenant Colonel	$5,588	$4,676
Major	4,848	3,936
Captain	3,792	3,336
First Lieutenant	3,152	2,696
Second Lieutenant	2,196	2,196

HOW SOON MAY ONE EXPECT TO ENTER SERVICE?

"Immediate cooperation with the officers' recruiting boards will result in a commission sooner than it could otherwise be obtained. A slightly longer period of time will obtain in the case of those referred to the Surgeon General for decision. In each case a period of fourteen days is granted between the administration of oath of office and the date of reporting for duty. If an officer desires to report before this fourteen day period has expired, he may do so by appropriate statement to the recruiting board. It is advised that no steps be taken to close one's office until after one has taken the oath of office.

"SAM F. SEELEY, M.D.,
Executive Officer,
Procurement and Assignment Service."

The colostrum (the fluid secreted by the breast of a woman a few days before or after childbirth) skin test for pregnancy, announced last year by three University of Illinois College of Medicine physicians, did not appear to offer a valuable diagnostic procedure to Lester M. Goldman, M.D.; Henry B. Kessler, M.D., and Mildred E. Wilder, A.B., Newark, N. J., in an investigation conducted by them, they report in the May 9 issue of *The Journal of the American Medical Association.* The test is based on the theory that pregnant women will show no reaction when the substance is injected beneath the skin whereas nonpregnant women, and men as well, will develop a wheal on the skin at the site of the injection.

In 500 tests the three Newark investigators say there were approximately 70 per cent correct reactions in all groups, both male and female, tested. They say they find it difficult to explain why their figures vary so widely from those of the University of Illinois physicians who had reported no reaction in 98 per cent of pregnant women and reactions in 96 per cent of nonpregnant women.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.
Camden County Medical Society, December 10, 1941.
Benton County Medical Society, December 12, 1941.
Ste. Genevieve County Medical Society, December 19, 1941.
Pulaski County Medical Society, December 22, 1941.
Moniteau County Medical Society, December 23, 1941.
Miller County Medical Society, December 26, 1941.
Chariton County Medical Society, December 29, 1941.
Montgomery County Medical Society, January 20, 1942.
Holt County Medical Society, January 26, 1942.
Dallas-Hickory-Polk County Medical Society, January 28, 1942.
Butler County Medical Society, February 21, 1942.
Scott County Medical Society, February 21, 1942.
Cass County Medical Society, March 5, 1942.
Lincoln County Medical Society, March 5, 1942.
Johnson County Medical Society, March 13, 1942.
Macon County Medical Society, March 24, 1942.
Christian County Medical Society, March 26, 1942.
Webster County Medical Society, March 28, 1942.
Morgan County Medical Society, April 1, 1942.
Franklin County Medical Society, April 13, 1942.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Nodaway-Atchison-Gentry-Worth Counties Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, April 6.

Members present were Drs. Francis R. Anthony, Charles T. Bell, J. A. Bloomer, J. M. Boyles, B. F. Byland, Hiram Day, Loren E. Egley and Wm. M. Wallis, Maryville; Eugene L. Crowson, Pickering; Charles D. Humberd, Barnard; Charles W. Kirk, Hopkins; Henry C. Bauman, Fairfax; Clifton M. Waugh, Tarkio; Frank H. Rose, Albany; Samuel E. Simpson, Stanberry, and Pren J. Ross, Grant City. Guests present were Drs. M. L. Holliday, Fillmore; R. L. Strobach, Cameron; Maurice L. Jones, Kansas City; Charles H. Flynn and P. E. Newport, Clarinda, Iowa; Benjamin S. Barnes, James H. Gasson and W. F. Stotler, Shenandoah, Iowa; Charles A. Tompkins, Omama, Nebr., Earl Braniger, Jesse Miller and D. J. Thomas, Maryville, dentists; Mr. Max Webb, technician of the Duncan Laboratories, Kansas City; Mr. Uel W. Lamkin of the Northwest Missouri State Teachers College, Maryville, and Mr. Ed Myers, Superintendent of the Maryville City Water Department, Dr. Maurice L. Jones, Kansas City.

At the invitation of the president, Dr. Charles T. Bell, Dr. R. L. Strobach, Cameron, of the Missouri Public Health Service, discussed the state rules and regulations concerning quarantine of communicable diseases as promulgated in Book IV of the Missouri Public Health Manual.

Mr. Ed Myers, Maryville, gave a short review of the processes of chlorination, coagulation and filtration by which the Maryville city water plant eliminates waterborne contagion. He mentioned also the recent apprehension at the pumping station of a discharged soldier who was a paratyphoid carrier and whose infection involved several of his joints.

Dr. Charles A. Tompkins, Omaha, Nebraska, gave an interesting and much appreciated lecture, illustrated with lantern slides, on "Pectin-Agar in the Treatment of Diarrhea and Other Digestive Disorders in Children and Infants." Dr. Tompkins has done much pioneer work in this pediatric field and gave his well marshalled array of data in an attractive form.

Dr. Maurice L. Jones, Kansas City, discussed "The Toxicity of the Sulfonamide Compounds" with especial reference to the pathologists' views of their practical and clinical applications.

Both of these papers received numerous short comments and both speakers furnished careful answers to further questions about the topics.

The meeting adjourned at 10:40 p. m. until Monday evening, October 5, 1942.

Charles D. Humberd, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

A. J. CAMPBELL, SEDALIA, COUNCILOR

Henry County Medical Society

The Henry County Medical Society held its annual meeting, December 20, in the office of Dr. S. B. Hughes, Clinton.

Following the disposal of routine business, the following officers for the ensuing year were elected: President, Dr. E. C. Peelor, Clinton; secretary and treasurer, Dr. R. S. Hollingsworth, Clinton.

R. S. Hollingsworth, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WM. WALLIS SMITH, SPRINGFIELD, COUNCILOR

Newton County Medical Society

The Newton County Medical Society met at Neosho on April 6.

Dr. F. G. Thiebaud, Neosho, was elected to membership in the Society.

Dr. R. J. Anderson, Neosho, transferred his membership from the South Central Counties Medical Society to the Newton County Medical Society. Dr. Anderson heads the County Health Unit which has just been established in Newton County.

The following officers were elected for 1942: President, Dr. Louis E. Rolens, Granby; vice president, Dr. Roy C. Lamson, Neosho; secretary-treasurer, Dr. John A. Guthrie, Neosho; delegate, Dr. Louis E. Rolens, Granby; alternate, Dr. John A. Guthrie, Neosho; censors, (three years) Dr. Roy C. Jamson, Neosho; (two years) Dr. Charles E. Maness, Neosho; (1 year) Dr. James R. Reynolds, Neosho.

John A. Guthrie, M.D., Secretary.

NINTH COUNCILOR DISTRICT

ELDON C. BOHRER, WEST PLAINS, COUNCILOR

Dent County Medical Society

The Dent County Medical Society met March 31 at 8:30 p. m. at the office of Dr. W. G. Dillon, Salem, with the following members present: Drs. G. E. Joseph, W. G. Dillon and F. E. Butler, Salem.

The minutes of the meeting of October 21 were read and approved.

The following officers were elected: President, Dr. Lloyd H. Hunt, Salem; vice president, Dr. Wm. G. Dillon, Salem; secretary-treasurer, Dr. Fred E. Butler, Salem; delegate, Dr. Fred E. Butler, Salem; alternate delegate, Dr. George E. Joseph, Salem.

A round table discussion of current topics relating to the practice of medicine followed.

F. E. Butler, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at 8:00 p. m., April 24, at the St. Francois County Courthouse, Farmington.

Dr. August A. Werner, St. Louis, gave an interesting talk on "Disorders of Sex Function Causing Physical Changes in the Male and Female," using lantern slides to stress vital points. A general discussion followed.

Following the scientific program the following officers were elected: President, Dr. J. L. Thurman, Potosi; vice president, Dr. J. P. Yeargain, Irondale; secretary, Dr. C. C. Ault, Farmington.

Members present were: Drs. Van W. Taylor and H. M. Roebber, Bonne Terre; C. H. Appleberry, Flat River; W. H. Barron and M. B. Barber, Fredericktown; H. C. Gaebe, Desloge; J. L. Thurman, Potosi; J. P. Yeargain, Irondale; C. C. Ault and Emmett F. Hoctor, Farmington.

C. C. Ault, M.D., Secretary.

Scott County Medical Society

The Scott County Medical Society met at the Public Library, Sikeston, April 21, with the following members present: Drs. E. A. Belden, H. M. Kendig, E. J. Nienstedt, G. W. H. Presnell, A. D. Martin, H. S. Miller, A. A. Mayfield and H. A. Dunaway, Sikeston; G. A. Sample and W. O. Finney, Chaffee, and J. A. Cline, Oran. Major Charles Fogarty and Lieutenant Jack Hartmann, M.C., were guests.

The application of Dr. A. D. Ferguson, Benton, for transfer from the Callaway County Medical Society to the Scott County Medical Society was approved by the board of censors.

Plans were made to entertain the Six County Medical Society in Sikeston on June 25. A committee consisting of Drs. E. J. Nienstedt, A. D. Martin and G. A. Sample was appointed to assist with the work.

Lieutenant Jack Hartmann discussed "Military Med-

ical Service" with discussion by Major Charles Fogarty.

Dr. H. S. Miller, Sikeston, District Health Officer, discussed the Civilian Defense Service and its medical services for emergencies. Dr. H. M. Kendig, Sikeston, discussed the work as applied to Scott County.

Dr. E. A. Beldon, Sikeston, announced that a Woman's Auxiliary to the Scott County Medical Society had been organized.

The Procurement and Assignment Service was discussed.

W. O. FINNEY, M.D., Secretary.

BOOK REVIEWS

THE MARCH OF MEDICINE. New York Academy of Medicine Lectures to the Laity, 1941. Morningside Heights, New York: Columbia University Press. 1941. Price $2.00.

The foreword by Malcolm Goodridge, M.D., President, The New York Academy of Medicine, is apparently a necessary epistle but merely fills two printed pages. It is followed by a six page introduction by the well-known and generally respected and acknowledged Dr. Haven Emerson. Both of these essays could have been omitted except that the average reader might be impressed by the message from the president of the primary source of these addresses and further stimulated to attention by the erudite words of Dr. Emerson. There are six addresses, each one of which was delivered to inform the open-minded, intelligent reading and listening public of the aims and purposes of those medical and allied scientists whose efforts are directed toward prolonging the average human life and making that life more comfortable.

The first lecture by Dr. Alan Gregg on "Humanism and Science" is too technical and scientific to accomplish the effect which the author and lecturer intended for the general public.

The second address by Henry E. Sigerist on "Paracelsus in the Light of Four Hundred Years" is a veritable classic by the most illustrious pupil and disciple of the greatest modern Paracelsist, Karl Sudhoff. Even if one differs with him on some minor statements, it practically incorporates the latest message from the great renaissance master who died four hundred years ago at the early age of 48. Paracelsus left a valuable legacy of about twenty-five editions of his writings which were published during his lifetime. He also left a wealth of manuscripts of which some of the available fragments were printed during the forty years following his death and unostentatious interment at Salzburg, Austria.

However little display of interest the average intelligent modern layman might manifest in the contributions of this "First Modern Physician" it behooves every medical man of today and future times to understand the apparently primitive motives of that pioneer who actually overthrew the blind belief in the teachings of the ancients and, among other innovations, advocated bedside instruction and direct observation.

Chapter III, "Psychiatry and the Normal Life" by William Healy, M.D., is twenty-six pages of instructive information, as also is Chapter IV, entitled, "Philosophy as Therapy" by Irwin Edman, Professor of Philosophy, Columbia University.

Chapter V, "The Promise of Endocrinology" by Oscar Riddle, Ph.D., of New York, represents another erudite essay of twenty-six printed pages.

Lecture VI, "What We Do Know About Cancer," by Francis Carter Wood, contains a wealth of information presented in plain and clearly understandable language. The great majority of medical men may obtain reminders of facts generally known, and some of these already half forgotten, of this dread universal disease. For physicians and surgeons this last chapter is of great value. Its worth alone far exceeds the cost of the whole book which has an excellent index for ready reference.

It takes a well educated layman to comprehend the contents of this little volume but every ordinarily intelligent doctor of medicine should derive therefrom a feeling of greater certainty in his firm position as a leader in fundamental medical policies of his own community.

Let us hope that The New York Academy of Medicine will continue "The March of Medicine." R. E. S.

THE 1941 YEAR BOOK OF PUBLIC HEALTH. Edited by J. C. Geiger, M.D., Dr.P.H., Director of Public Health, City and County of San Francisco; Clinical Professor of Epidemiology, University of California, etc. 304 South Dearborn Street, Chicago: The Year Book Publishers, Incorporated. 1941.

The Year Book on Public Health for 1941 gives a review of selected articles on public health that appeared in the literature since the last edition.

Some of the noteworthy features of this volume deal with virus infections, especially present knowledge of influenza and equine encephalomyelitis.

In an article on trichinosis, in 300 autopsies, it was found that trichina larvae were found in 15 per cent of 300 diaphragms studied.

Tuberculosis in industry and among nursing and medical students is the subject of several abstracts. Tuberculosis among married couples reveals that the disease is much higher among consorts than in the average population. The tuberculin patch test, used in the study in New York City school children, was found to be a simple, practical and reliable method of screening infected individuals although slightly less sensitive than the Mantoux. For routine work it is recommended as the initial test and if the result is negative at the end of one week a Mantoux test is recommended. The value of tuberculin testing in the schools is being questioned and the editor states "it is a common experience that tuberculin testing in grammar schools is, in general, a waste of time." Miniature roentgenograms of the chest have been used with marked success in Detroit, Chicago and New York City and they are especially valuable in surveying groups with a high mortality in tuberculosis.

The space devoted to industrial hygiene and especially to the work in this field since the beginning of national defense, is noteworthy. Likewise, the articles devoted to military hygiene, revealing the experience in England, should be of special interest at this time as they deal largely with mental hygiene as affected by air raids and the management of air raid casualties and the organization of air raid shelters. H. L. D.

SULFANILAMIDE AND RELATED COMPOUNDS IN GENERAL PRACTICE. By Wesley W. Spink, M.D., Associate Professor of Medicine, University of Minnesota Medical School. 304 South Dearborn Street, Chicago: The Year Book Publishers, Inc. 1941.

This is a clear, concise, brief treatise on the sulfonamides, their pharmacologic action, uses, dosage and complications.

The reader is introduced to sulfanilamide with a complete comprehensive review of the drug and its action on various organisms. It is well to remember that this is the drug of choice in beta hemolytic streptococci infections. A complete table is given regarding the preferential drug in various infections.

A list of diseases is given in which sulfonamides are of no value.

There is an interesting discussion of the pharmacologic aspects of the drug. Several theories are advanced for its failure in certain infections.

The remaining drugs, sulfapyridine, sulfathiazole,

sulfadiazine and sulfaquanadine are dealt with in similar manner. The value of each drug in treatment is appraised. There is a chapter devoted to complications of sulfonamide therapy. In addition there are several chapters, each devoted to the treatment of infections on one particular body system. One section is devoted to the local use of the sulfonamides.

An adequate bibliography is present for references or further investigation. A. E. U.

The 1941 Year Book of Pathology and Immunology. Pathology edited by Howard T. Karsner, M.D., Professor of Pathology, Director of the Institute of Pathology, Western Reserve University, Cleveland. Immunology edited by Sanford B. Hooker, A.M., M.D., Professor of Immunology, Boston University School of Medicine; Member, Evans Memorial for Clinical Research and Preventive Medicine, etc. 304 South Street, Chicago: The Year Book Publishers, Inc. 1941. Price $3.00.

It is impossible to review adequately a book of reviews and "The 1941 Year Book of Pathology and Immunology" is a very complete review of the important work done in these subjects in the year of 1941. This book has now taken an important place among the books of medicine. The arrangement of the material is good and I particularly recommend close attention to the little notes injected by Dr. Karsner after numerous of the reviews. There is not as much of this comment in Dr. Hooker's work, but what there is is timely. One could not single out properly any part of the work but the extensive review of articles and treatment of these reviews under blood groups is certainly well worth any practitioner's reading and I consider the selection of material under the pathology of tumors very good indeed. The entire book should be read by any pathologist or laboratory man and would be important on the shelves of any practitioner. H. N. A.

Asthma and the General Practitioner. By James Adam, M.A., M.D., F.R.F.P.S.G., Surgeon-in-Charge, Asthma Clinic, Stobhill Hospital, Glasgow, Surgeon for Diseases of Ear, Nose and Throat, Lanarkshire County Council Hospitals; Hon. Surgeon for Same, Glasgow Royal Infirmary and Glasgow Corporation Hospitals; author of "Asthma and Its Radical Treatment." With a foreword by James Bridie, O. H. Mavor, M.D. A William Wood Book. Baltimore: The Williams & Wilkins Company. 1939. Price $2.00.

It is rare today in America to find a book which totally disregards scientific research and expresses views, not only contrary to modern concepts of medical problems, but ridicules accepted principles. Rare though it is, such a book has made its appearance under the title, "Asthma and the General Practitioner." It is written by James Adam, a Glasgow physician.

The spirit of the book is exemplified in the foreword written by James Bridie, who, writing of organized research, likens it to a priesthood. I should like to quote from this amazing foreword: "Novices in this priesthood must withdraw themselves from the crowd and follow a hard way. They progress from scholarship to fellowship, which is a kind of bishopric. During this progress, no man may contradict them but their peers or superiors in the priesthood, for they talk a special language not understood by the vulgar lay brothers who make up the bulk of the professions. They live in beautiful buildings, full of shining and fragile apparatus. They are supported by grants, endowments and the gifts of the faithful."

The ideas expressed in this book for the most part disregard accepted methods of diagnosis and treatment of asthma and express entirely the viewpoint of the author based on a supposed experience of seeing two thousand cases in a period of forty years. One may conjure up a picture of the author on noting his frequent references to the "asthmatic girl who powders, paints, wears high heels and drinks cocktails."

The old theory of toxicosis as a cause of asthma is rehashed. As proof of the theory the author points to first, eosinophilia, which he states is evidence of "dirty" blood. He also believes that the frequency of asthma in "only" children and domestic pets, both pampered, also suggests toxicosis. Of prime importance is his therapeutic evidence for toxicosis based upon the sallow complexion of the chronic asthmatic and the relief obtained from "blue pills" (presumably some mercurial). Another proof of toxicosis pointed to by the author is so-called "week end asthma." The cause is said to be too much food and too little exercise.

Heredity in allergy is discounted and the statement is made that "nurture is of more importance than nature."

Of particular interest is a chapter on treatment which contains some of the most bizarre aphorisms that the reviewer has ever seen. It is difficult to agree with the author that high heels tend to nasal congestion and catarrh; that lameness, flat feet, corns and bunions, all hinder improvement and prevent cure or that colonic douches are of great importance in the treatment of asthma. He finds lipiodol to be an effective treatment for asthma. This is contrary to the consensus of opinion in America where thousands of lipiodol injections have been given for relief of asthma. He recommends the ionization of the nasal mucous membrane for relief of hay fever. This is a form of treatment popularized by Warwick but abandoned in this country, not only as a failure but advised against because of harmful effects that followed many cases in which ionization was attempted. C. M. K.

Diseases of the Nose and Throat. By Charles J. Imperatori, M.D., F.A.C.S., Professor of Otolaryngology, New York Polyclinic Medical School and Hospital, etc., and Herman J. Burman, M.D., F.A.C.S., Adjunct Professor of Otolaryngology, New York Polyclinic Medical School and Hospital, etc. 480 Illustrations. Second Edition revised. Philadelphia, London, Montreal: J. B. Lippincott Company. 1939. Price $7.00.

The first edition of this book which was published only three years ago is now presented with extensive additions and revisions. New material concerning allergy, physiology, surgery and pathology adds greatly to the value of this book.

The compact method of following the outline of symptoms, diagnosis, treatment, pathology, etiology and prognosis produces a thorough and effective analysis of the diseases of the nose and throat. The comprehensive description of the diseases in this readily available form makes the book an invaluable reference source. Pathology, the basis of proper medical and surgical treatment, is wisely allotted a larger amount of space.

Four hundred and eighty illustrations greatly augment and simplify numerous questions in anatomy, pathology, surgical technic, treatment and diagnosis.

The style and form of the text make it valuable to the general practitioner as well as the specialist.

B. C. T.

Transactions of the Kansas City Academy of Medicine. 1937, 1938, 1939. Commemorating Fiftieth Anniversary. Kansas City, Missouri: The Brown-White Company. 1939.

This volume is one of a series published by the Academy and commemorating its Fiftieth Anniversary.

The contents cover a historical sketch of the Academy and a series of papers presented to the Academy during the last five years by outstanding men in all fields of medicine.

This series of monographs should be particularly interesting to the general practitioner as well as the specialist as the papers are presented in readable form and with especial emphasis on diagnosis and treatment.

One need not hesitate in recommending this volume and it is especially applicable to the busy physician.

W. W. G.

SKIN GRAFTING from a Personal and Experimental Viewpoint. By Earl Calvin Padgett, M.D., F.A.C.S., Professor of Clinical Surgery, University of Kansas School of Medicine, Kansas City, Kansas. Springfield, Illinois; Baltimore, Maryland: Charles C. Thomas. 1942. Price $4.50.

This is a short, concise edition covering its subject in a most understandable manner for the specialist, general practitioner or student. It is well organized and covers all methods of skin grafting, including the personal results obtained by the author in his broad experience at this work.

The methods used, the preoperative cases and the postoperative results are well discussed and very well illustrated throughout. The book is completely summarized and a full bibliography is included. D. A. J.

PHYSICAL THERAPY FOR NURSES. By Richard Kovacs, M.D., Clinical Professor and Director of Physical Therapy, New York Polyclinic Medical School and Hospital; Attending Physical Therapist, Manhattan State, Harlem Valley State and West Side Hospitals, etc. Second edition, thoroughly revised. Illustrated with 99 engravings. Philadelphia: Lea & Febiger. 1940. Price $3.25.

This excellent volume may well be called "a nut shell" edition of physical therapy for the nursing student and is worthy of space on the "twelve-inch" book shelf of all professional libraries. Primarily for use in the school of nursing curricula, it gives a brief physical history and explains in detail the uses of physical forces in treatment without developing too much technic and presenting for discussion each group of forces in a form affording students an opportunity to obtain fingertip enlightenment in the application of physical therapy, thus enabling them to assist doctors in an intelligent manner. The book serves also as a basis in creating a desire upon the part of students for a continuance of study, by post-course, of this highly specialized field of service which is becoming an invaluable part of the medical and surgical profession. E. A. G.

GROWING OUT OF BABYHOOD. Problems of the Preschool Child. By William S. Sadler, M.D., F.A.P.A., Formerly Professor at the Postgraduate Medical School of Chicago; Chief Psychiatrist and Director, the Chicago Institute of Research and Diagnosis, etc., and Lena K. Sadler, M.D., F.A.C.S., Associate Director, the Chicago Institute of Research and Diagnosis, etc. New York and London: Funk and Wagnalls Company. 1940. Price $2.50.

In the preface the authors state that this book "is more specifically directed to mothers, nurses, governesses and caretakers, though we trust that our efforts to make it understandable to the lay reader will not interfere with its value as a medical reference work." Problems of physical hygiene have purposely been omitted, as well they may be, for of "child hygiene" books for lay readers there seem to be no end.

For the benefit of the wayfaring reader I list the following chapter headings: The normal child, eliminative habits, bed wetting, thumb sucking, nail biting, temper tantrums, feeding problems, rest and sleep, obedience, discipline, punishment, play activities, habits, emotions and attitudes, imagination and falsification, sex problems, adjusting to the group and parent-child relationships.

The Sadlers are indeed of those who formulate and put their trust in "modern child psychology"—which is to say that they definitely side with the child and want this to be an age in which any child should want to grow up. Conflicts are to be avoided, prevention being far better than the wisest punishment. Confidence and security in home and school must be the end sought. St. John summarized it in his first letter when he wrote, "Perfect love casteth out fear."

What reader or reviewer is there in this day and age who would dispute the value of such a goal?

"Be patient. A few more weeks and the little fellow . . . etc.," is a typical selection. The Sadlers make but another and telling attempt to banish dictatorship and totalitarianism from the home. If only they could have been given a chance at those under whose tutelage Hitler "grew out of babyhood!" P. J. W.

COMMUNICABLE DISEASE NURSING. By Theresa I. Lynch, R.N., Ed.D., Instructor in Education, New York University, etc. With 156 text illustrations and five color plates. St. Louis: The C. V. Mosby Company. 1942. Price $3.75.

This book outlines the subject as it is taught and suggested for study in "The Curriculum Guide of School of Nursing" published in 1937.

The chapter which deals with the historic part that communicable diseases have played in the destiny of the human race is very good.

Other chapters deal with immunity, principles and practice of medical asepsis, and nursing care of communicable diseases which will help the nurse care for the patient intelligently.

The study of all contagious and infectious diseases, and public health control is discussed in a clear and helpful manner, easy for nurses to understand.

It is simply written. Illustrations and color plates are very good. All explanations are clear and easy to follow. The type and paper and good.

I consider it an excellent book which should be read by every nurse interested in communicable diseases.

B. P.

SYNOPSIS OF ALLERGY. By Harry L. Alexander, A.B., M.D., Professor of Clinical Medicine, Washington University School of Medicine, St. Louis; Editor of *The Journal of Allergy*. Illustrated. St. Louis: The C. V. Mosby Company. 1941. Price $3.00.

The current knowledge of allergy is expertely compressed into 238 pages. The historic highlights, discussion of atopy, the clinical manifestations of asthma, hay fever, atopic rhinitis, gastrointestinal allergy, physical allergy, headache and other miscellaneous allergic disorders, dermatoses, drug allergy, serum allergy and bacterial allergy are concisely presented in separate chapters with the author's viewpoint when it disagrees with the generally accepted one. The appendix contains miscellaneous information ranging from recipes for elimination diets and the distribution of ragweed pollen to the preparation of atopens and the technic of the leukopenic index. The bibliography consists of sixty-three articles in the medical literature to which reference has been made in the text.

This book has achieved its purpose of giving the present day knowledge of allergy and its clinical manifestations in a succinct manner. Its general excellence, however, is marred by a few trite illustrations, occasional lapses in diction and phraseology and by typographical errors. Among the more culpable ones are the incorrect equivalent dosages, such as on page 141, "atropine 0.001 gm. ($\frac{1}{150}$ gr.)" as the dose to be given once or twice a day to lessen nasal discharge. It is thought unwise to

give 0.001 gm. as the initial dosage for this purpose; page 92, "Apomorphine 0.005 gr. (gr. 1/30)" which appears in a prescription in which the metrology is a mixture of the metric and apothecary system, and in another prescription on the same page, "Comp. glycerine mixt." as a vehicle, a formula which cannot be found in the United States Dispensatory.

These faults are, perhaps, excusable in a first edition and do not materially detract from its usefulness as a handy volume but they do impair its accuracy as a reference book.

Immune-Blood Therapy of Tuberculosis. With Special References to Latent and Masked Tuberculosis. By Joseph Hollos, M.D. Boston: Bruce Humphries, Inc. 1940. Price $2.50.

The author, a Hungarian physician, presents seventy-eight cases treated by what he terms immune-blood therapy. Many of these cases are obviously pulmonary tuberculosis but also a great variety of other types of cases which he believes to be caused by tuberculous intoxications are included. The treatment consists of immune blood obtained from rabbits previously injected with tubercle bacilli. The author obtains serum from these rabbits which he dilutes with water making from 1:10 to 1:10,000,000,000 dilutions. This solution sometimes is given by hypodermic injection but is more often given to the patient to be applied directly by rubbing into the skin, a few drops per day.

The diagnosis in most of these cases is open to serious doubt. Many of them are diagnosed as tuberculosis and treated as such because of the presence of a positive tuberculin test. The results which the author is so enthusiastic about are results which frequently are seen in tuberculosis treated by bed rest and time alone. There is nothing particularly outstanding about the result in most of these cases. The idea of treating tuberculosis by infinitesimal dilutions of rabbit serum which is expected to be absorbed throughout the skin is too remote to justify serious consideration. I do not believe the results are convincing and do not recommend the book to any medical man seriously interested in diagnosis and treatment of tuberculosis. J. S. H.

Arthritis in Modern Practice. The Diagnosis and Management of Rheumatic and Allied Conditions. By Otto Steinbrocker, B.S., M.D., Assistant Attending Physician and Chief, Arthritis Clinic, Bellevue Hospital, Fourth Medical Division, New York City. With chapters on Painful Feet, Posture and Exercises, Splints and Supports, Manipulative Treatment and Operations and Surgical Procedures. By John G. Kuhns, A.B., M.D., F.A.C.S., Chief of the Orthopedic and Surgical Service, Robert Breck Brigham Hospital, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1941. Price $8.00.

Arthritis and related conditions have for years been neglected diseases causing untold suffering and incapacity but being neither contagious nor fatal they failed to arouse the public crusaders and this general apathy involves the medical profession as well. In recent years there has been a revival of interest in arthritis in the profession and it has been shown quite definitely that arthritis is just as amenable to treatment as are most of the chronic diseases. The author of this text takes pains to point this out. He emphasizes the responsibility of the medical man to the rheumatic patient and he displays righteous indignation over the tendency of the practitioner to give the arthritic patient a gloomy prognosis and nothing else. That this attitude is erroneous and dangerous is shown throughout the text.

The arrangement of the book is excellent and the individual chapters as on the painful back and on the painful shoulder has much to recommend it.

There is perhaps an oversimplification in classification and pathology but this is certainly not a fatal error and to many will be all too satisfying.

The author has been tremendously fair in his attitude toward treatment and has, so far as this reviewer could determine, avoided the pitfalls of so many rheumatologists; namely, the riding of a therapeutic hobby.

The chapters on special methods of treatment such as orthopedic care and injection of local anesthesia deserve special mention. R. O. M.

Exercises in Electrocardiographic Interpretation. By Louis N. Katz, A.B., M.D., Director of Cardiovascular Research, Michael Reese Hospital, Chicago, Illinois; Assistant Professor of Physiology, University of Chicago, Chicago, Illinois. Illustrated with 128 engravings containing 189 electrocardiograms. Philadelphia: Lea & Febiger. 1941. Price $5.00.

This book was written with the purpose of giving the reader some basis for the interpretation of electrocardiographic tracings. One can become adept in solving the electrocardiogram only by viewing many graphs. It is essential that he have some place to start and this book, with its contents, offers him just that foundation. This book may be compared to that place in medical school where one attempts to correlate the clinical aspect of medicine with the fundamental sciences. It contains some 200 electrocardiograms with a complete interpretation beginning with how and why the gram is interpreted as such, followed by a definite diagnosis and a brief note on the history of the patient. Finally, a correlation between gram and clinical history is given. This is done with each and every record.

Instructions on the technic used in reading the grams is given and the necessity for a systematic routine is emphasized.

This is a companion book to the larger edition published by the same author. A. E. U.

Clinical Nursing in Medicine. By Julius Jensen, Ph.D. (in Medicine), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Assistant Professor of Medicine, Washington University, etc., and Deborah Maclurg Jensen, B.Sc., R.N., Lecturer in Nursing Education, Washington University, St. Louis, etc. With an Appendix of Diets prepared by Howard A. Rusk, M.D., F.A.C.P., Assistant Chief of Staff, St. Luke's Hospital, St. Louis, Missouri, and Collaborators. New York: The Macmillan Company. 1941. Price $3.25.

This is a remarkable book. In it the authors have reached their objective of producing "a brief, concise, readable, fairly complete and up-to-date text on elementary internal medicine, including nursing care."

There are fourteen "units," such as "Metabolic and Deficiency Diseases," "The Infectious Diseases," "Allergy," "Diseases of the Blood and Blood Forming Organs," "Diseases of the Ductless Glands." These units embody sixty-nine chapters such as "The Less Common Communicable Diseases" (virus diseases, rickettsial diseases, mycotic infections), "Diabetes" and "Diseases of the Peripheral Vessels." Under each heading, after concise statements of etiology, symptoms, treatment and other well considered comments, is an excellent section on nursing care.

The book is quite complete. The authors have presented pertinent data concerning just about every medical disorder in which a nurse is likely to be called on to render service—or a physician either, for that matter. It is truly remarkable that they have been able to do this with such conspicuous accuracy and with such clarity.

The style is easy and pleasant. The type is clear and in spite of the 808 pages the book is not large.

Every nurse and most physicians would profit greatly by using this book. D. L.

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TREATMENT OF ACUTE PERFORATIVE PERITONITIS

THE IMPORTANCE OF OPERATION, OXYGEN INHALATIONS, PLASMA TRANSFUSIONS AND THE SULFONAMIDES

ROBERT ELMAN, M.D.
AND
C. L. ECKERT, M.D.
ST. LOUIS

The importance of peritonitis lies in its high mortality. It is probable that more than 30,000 deaths a year in the United States are due to this infection. While nearly two thirds of these cases originate in perforation of acute appendicitis, there are other lesions which lead to peritonitis and thus contribute to this high death rate. The surgeon is vitally interested in peritonitis because it is an ever-present postoperative danger which must be avoided in many intra-abdominal procedures. The general practitioner should be impressed with the frequency of peritonitis because he is often in a position to lower its incidence by recognizing and eliminating the diseases which lead to it.

Varieties of Peritonitis.—Of the two varieties of acute peritonitis, little will be said of the primary type which occurs nearly always in children and is probably blood borne, the etiologic organism being the pneumococcus, the streptococcus and, rarely, the staphylococcus. By far the more important is perforative or secondary peritonitis which is the common type, especially in adults, and follows some lesion which results in a perforation into the peritoneal cavity as already mentioned. The terms "peritoneal irritation" and "peritoneal contamination" are often used and have specific meanings and are to be distinguished from peritonitis which is an actual infection. For example, peritoneal irritation may be produced by acute appendicitis, whereas, a true peritoneal infection results only when the appendix perforates. In a traumatic perforation, peritoneal contamination may occur at once, although slight manifestations may be produced; yet, if the perforation is not closed, clear-cut signs of peritoneal infection will soon develop. The surgeon must, therefore, differentiate these various stages in the possible development of peritonitis in order to institute prompt therapy. This will be discussed later. On the other hand, peritoneal irritation may be caused by lesions which do not lead to peritonitis at all; e. g., mesenteric lymphadenitis, retroperitoneal hemorrhage, diaphragmatic pleurisy and salpingitis. In such cases the recognition of the type of peritoneal involvement will save the patient a needless operation.

The Diagnosis of Peritonitis.—Peritonitis is diagnosed easily when the patient is about to die of the disease; i. e., when he shows the Hippocratic facies, fast pulse, high fever, ashen color, respiratory distress and abdominal distention. It is useless to dwell upon such manifestations because at this stage there is not much one can do. Fortunately, such late cases are being seen less and less frequently.

The earlier the patient is seen the less evident are the signs of peritonitis itself. Indeed, in secondary peritonitis the diagnosis should be made before perforation occurs by recognizing the manifestations of the primary lesion itself; i. e., the signs of peritoneal irritation. Thus the history of a cause is important in the diagnosis of secondary peritonitis. In primary peritonitis this is not true for, in such patients, the disease springs full-blown with fever, abdominal pain and tenderness, muscle spasm, nausea and vomiting without preliminary signs; indeed, such a history in a child always should arouse a suspicion of primary peritonitis, especially if diarrhea is also present and a positive blood culture is obtainable.

Acute peritonitis should be considered in any patient who exhibits the signs of a systemic infection; i. e., fever, leukocytosis and prostration together with localized abdominal signs such as pain, tenderness and muscle spasm, nausea and vomiting and distention. The distention is usually due to paralytic ileus and is evidence of a generalized

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infection, namely, diffuse peritonitis. It is probable that the ileus in peritonitis is a protective mechanism which splints the intestine, puts the gut at rest and thus tends to prevent spread of the infection. In the presence of paralytic ileus, vomiting may occur but it is not apt to be profuse, being rather more of a regurgitation although the material ejected may be fecal in character. Diarrhea, however, is not infrequent in peritonitis, often being associated with a localizing abscess in the pelvis.

I want to emphasize again the importance of distinguishing peritonitis itself from the lesions which lead to peritonitis even though in some cases the early signs of peritoneal irritation may be so pronounced as to simulate an actual general peritonitis. For example, a patient was seen recently who had fever, was prostrated and exhibited diffuse abdominal tenderness and even some distention. Clinically, she seemed to have a true generalized peritonitis; yet at operation she showed only an acutely tense but still unperforated appendix. Because the signs were due to peritoneal irritation and not to infection, the appendix could be removed in time and a peritonitis therefore avoided. On the other hand, a patient may be shot through the abdomen and have extensive peritoneal contamination with fecal material in the cavity with relatively few peritoneal manifestations, yet, in twelve hours may have an evident but by then incurable infection. For these reasons it is necessary to recognize the lesions capable of producing peritonitis because once such a diagnosis is made the presence or imminence of a beginning peritonitis must be more or less taken for granted.

The following conditions are associated with manifestations which are well known: (a) perforation of acute appendicitis; (b) perforation of peptic ulcer; (c) perforation of a typhoid ulcer; (d) traumatic perforation, either penetrating or nonpenetrating, the contamination resulting from either the biliary tract, the gastrointestinal tract or the genito-urinary tract; (e) postoperative peritonitis.

TREATMENT OF ACUTE PERITONITIS

Prophylaxis.—One of the surest ways of lowering the high mortality due to acute peritonitis is the elimination of the disease entirely. This is not only possible but should in fact be entirely within reach providing the lesions leading to peritonitis are removed before they perforate, or, so soon after that the perforation has not had the opportunity of producing an infection. Peritonitis due to a perforation of acute appendicitis is responsible for two thirds of the deaths due to peritonitis. Of the twenty thousand deaths in the United States, certainly all but a very few would be eliminated if all patients with acute appendicitis had an appendectomy before perforation occurs. I am sure that all realize how important it is that all patients with acute appendicitis be operated upon as soon as the diagnosis is made. I condemn most severely the recent tendency to treat acute appendicitis with perforation by conservative methods. Actually, as indicated, previously, it may be impossible to determine whether a patient with acute appendicitis has a perforation or not. In that sense every patient who has the disease should have an appendectomy as soon as possible.

A second type of case in which prophylactic therapy can be employed is postoperative peritonitis. This obviously concerns the achievement of careful technic which is so necessary, especially whenever a gastrointestinal anastomosis is carried out. This is also true of surgery of the biliary tract which must be performed with particular care in order to avoid the tragedy of a bile peritonitis. The same is the case, though less so, in surgery of the genito-urinary tract in order to avoid urinary extravasation. In these ways will postoperative peritonitis be eliminated.

A final group in which prophylactic measures are important is the traumatic case. It should be emphasized over and over again that prompt and meticulous operation upon any patient with traumatic perforation of the abdominal cavity is essential if peritonitis is to be avoided. It is fatal to wait until peritoneal irritation is manifest; by that time it is often too late to save the patient's life. Any patient who in any way is suspected of having traumatic penetration of the visceral peritoneum should be operated upon as soon after the accident as possible. Nonpenetrating blows to the abdomen should also be suspected of producing a rupture of the intestine. The roentgen ray, when it shows air under the diaphragm, is of obvious value; however, a negative film is of little diagnostic significance.

Operation in Peritonitis.—Once a diagnosis of peritonitis is made, the question of operation is obviously of extreme importance. Unfortunately the situation has been complicated and confused by the recent tendency to treat all patients with peritonitis by nonoperative means entirely. The nonoperative measures which are to be used in patients with peritonitis will be discussed later. It must be realized, however, that peritonitis due to a perforation is primarily a surgical disease and that operation enables the surgeon to close the perforation. In this way the continuous contamination due to the perforation can be terminated, thus enabling the body to overcome the infection due to contamination from escape of material before the perforation was closed. Another reason for the more general adoption of surgical procedures is the fact already mentioned; namely, a mistaken diagnosis of peritonitis at the bedside is often made when actually a nonperforated lesion is present which can be removed readily, thus preventing most surely the development of peritonitis.

The first principle, therefore, in the surgical treatment of acute peritonitis is the removal of the cause whether it be a perforated peptic ulcer, a perforated appendix or a traumatic perforation of the biliary tract, gastrointestinal tract or genito-

urinary tract as soon after the occurrence of the perforation as possible. This does not mean, however, that every patient with a perforative peritonitis should be operated upon as soon as the diagnosis is made. Unfortunately, many of these patients are really too ill to withstand any type of operative procedure. In such patients nonoperative measures must be carried out first. However, use such measures not as a substitute for operation but really in order to prepare the patient so that he may be able to withstand the operation with less risk The principles involved in this statement may be illustrated by presenting experience with peritonitis due to a perforation of acute appendicitis in the St. Louis Children's Hospital.[1] Briefly, this experience shows that the children operated upon in good general condition had the lowest mortality if the appendix was removed promptly. Any delay in this group multiplied the mortality by four. On the other hand, of those that were very ill the mortality was highest if they were operated on immediately; in this group, therefore, mortality was considerably lowered by a delay in operation which was utilized in preparing the patient for appendectomy. This principle really applies to most other types of secondary peritonitis (except traumatic cases which, of course, should be operated on immediately if possible). It should be emphasized also that with the newer nonoperative procedures to be described, particularly the sulfonamides, the period of the delay in really sick patients is becoming shorter. Indeed, if the prostration is due to the infection alone, operation need not be postponed at all because chemotherapy is so effective, as illustrated in case 1.

Once an operation is decided upon, several questions arise, one of them in regard to the incision. If the site of the lesion is known, the incision, of course, should be made over its location. If there is some doubt as to the nature of the lesion responsible for the peritonitis a low right rectus incision, in general, is the most suitable because most of the conditions responsible for peritonitis are in that part of the abdomen. If there is some question as to whether the peritonitis is primary or secondary, a small diagnostic incision is made under local anesthesia. This permits an inspection of the peritoneum and the obtaining of peritoneal fluid. If the pneumococcus is found in a stained smear of the fluid the opening is closed. If, on the other hand, the infection is obviously due to B. coli, the incision is enlarged and the appendix searched for and removed. If the appendix is normal, other sources for perforation are considered. Meckel's diverticulum, peptic ulcer and diverticulitis of the colon come immediately to mind. Sometimes blood is seen and the spleen may be found ruptured. Often one can tell the probable site of the lesion by noting from where the infected fluid or blood is coming.

The importance of drainage in peritonitis has been exaggerated greatly; indeed, with the advent of chemotherapy it eventually may be relegated to the limbo of old-fashioned procedures. It is known now that it is impossible to drain the peritoneal cavity, a principle which was emphasized by Yates over a quarter of a century ago. A drain is used in operations on the peritoneal cavity merely to keep the wound open and to exteriorize the small portion of the cavity which is surrounded by the drain. In this sense a drain is used only to create a sinus track and this track should lead to an area containing necrotic tissue, uncertain suture lines, perforations which may not remain closed or localized abscesses which need to fill in from below upward. The use of a drain inserted blindly in the peritoneal cavity without removal of or determination of the cause of peritonitis is apt to be so disappointing that it should rarely be carried out. If such a drain is placed, an attempt should be made to exteriorize the infected lesion.

As to enterostomy, this procedure probably has no place in the treatment of diffuse peritonitis. Though often considered in order to relieve distention due to paralytic ileus, it actually seldom successfully achieves such an effect. Enterostomy in the presence of paralytic ileus drains only a small loop of the intestine. It cannot drain the rest of the intestinal tract because of the paralysis, which means that the contents cannot be carried to the site of the enterostomy. On the other hand, once the infection is overcome and the paralysis is relieved, the enterostomy is no longer necessary inasmuch as there is no obstruction and the contents of the intestine are then expelled through the normal channels.

Nonoperative Therapy.—Although the removal of the cause of the peritonitis by operation is essential, it must be emphasized, particularly in the severely ill patients, that this operation be preceded and followed by nonoperative measures which if properly carried out will reduce the mortality greatly. There are, of course, numerous details concerning the postoperative care of a patient with peritonitis, most of which are fairly well known. Four nonoperative procedures, most of which are relatively new and, therefore, deserve more than ordinary emphasis are presented. They are as follow: parenteral fluids, especially plasma transfusions; inhalation of 95 per cent oxygen; sulfonamide therapy, and gastrointestinal decompression.

Parenteral Fluids.—Parenteral fluids are obviously important in patients with peritonitis inasmuch as nearly all are dehydrated and cannot take anything by mouth. To maintain fluid balance, therefore, intravenous and subcutaneous routes must be employed. Many errors are commonly made in the administration of parenteral fluids. It must be emphasized that the fluids given be adequate in amount and of the proper sort. A common mistake is to give glucose alone; this is worse than useless because it increases dehydration through transient diuresis. The fact that salt is just as important as water is often forgotten. As a general rule it is usually necessary to give at least 5,000 cc.

initially and probably from 3,000 to 5,000 cc. of saline or Ringer's solution per day thereafter. Glucose may, of course, be added and is advisable as a source of calories. Obviously, a good output of urine must be maintained in order to assure fluid balance.

In recent years it has been realized that the parenteral fluid given in these cases often must contain more than water and salt and glucose. These individuals are depleted of protein and suffer from varying degrees of hypoproteinemia and therefore require fluids containing plasma protein. The cause of the hypoproteinemia in these patients is a loss of fluid containing plasma protein (transudate) into the gastrointestinal wall and the peritoneum. Because red blood counts will be high and remain high, even with large injections of saline and glucose, the mechanism of the hemoconcentration is similar to that which occurs in extensive burns. Indeed, if the patient has a severe degree of hypoproteinemia, the injection of large amounts of water and electrolytes not only will fail to relieve the dehydration but may even lead to what is known as "salt edema." What is needed, therefore, is the injection of fluid containing protein; namely, large plasma transfusions. The amount of plasma required is often as great as from 10 to 20 cc. per kilogram of body weight or at least 1,000 cc. which may have to be repeated until the hemoconcentration is corrected and diuresis started. It is possible that the newer use of amino acid mixtures will, at least partially, replace the necessity for plasma.

In the absence of detailed chemical studies of the blood it is suggested that fluid balance may be conveniently determined and followed by two simple measurements: (1) frequent red blood cell counts and (2) measurements of the total urinary output. In general, if the red blood count falls and remains normal, it is an excellent indication (in the absence of bleeding) that fluid balance is being achieved. The output of from 1,000 to 2,000 cc. of urine per day is an even better indication not only that fluid balance has been achieved but also that hypoproteinemia is not a serious defect and that salt edema is not developing.

Oxygen Inhalation.—Oxygen inhalation has come to be an important means of treatment in patients with severe peritonitis as well as in those with intestinal obstruction. The reason for the beneficial effects of oxygen lies in the relief of anoxia, a defect which occurs in a great many very sick patients and is usually unsuspected because there may be few signs of respiratory difficulty. Brilliant therapeutic results following the inhalation of pure 95 per cent oxygen with 5 per cent carbon dioxide in very sick patients with peritonitis frequently have been observed. (See case 2.) Of the three methods used for the administration of oxygen, the oxygen tent is probably the best, and has the advantage in the summertime of giving the patient air conditioning, although it is the most expensive. The Boothby mask is less expensive and more convenient to use but it is sometimes impossible to employ because the patients object to it. Nasal catheters for the administration of oxygen are also convenient and useful but have a similar disadvantage.

Sulfonamide Therapy.—The sulfonamides undoubtedly have revolutionized the treatment of peritonitis because they are effective against the organisms which are commonly found in the peritoneal cavity, that is, the B. coli and the streptococcus. However, sulfonamides must be used with certain definite limitations. The surgeon, especially, must recognize these limitations and dangers and be careful in the application of this otherwise most useful drug. Our attitude toward the use of sulfonamides in surgical infections is that these drugs are effective in a prophylactic way and also early in the course of the invasion of an infection but that the drug has little or no beneficial or curative effect in real localized suppuration in any part of the body. When used in the presence of pus it is merely an adjunct to prevent spread during and immediately after the operation which is necessarily done through relatively normal tissue. In other words, sulfonamides cannot displace the necessity for incision and drainage of pus; indeed, it may be dangerous to use the drug in the presence of pus which tends to spread rather than localize, thus masking its presence when the infection is deep within the body. In most surgical infections we use the drug intensively, but for only a few days after operation.

The proper use of the sulfonamides, together with adequate surgery, lower tremendously the mortality of peritonitis. Moreover, sulfanilamide placed in the peritoneal cavity at the time of operation in peritonitis has already cut down tremendously the number of patients which require drainage. It is not known as yet whether it will eliminate entirely the necessity for drainage; this is perhaps too much to hope for. On the other hand, it has been found that a great many patients operated upon for perforative peritonitis, as in the cases cited herein, can be closed with safety after a satisfactory appendectomy by the implantation of sulfanilamide in the peritoneal cavity. In an adult as much as 10 grams of the crystals may be dusted safely into the peritoneal cavity, but lumping of the drug should be avoided. Sulfanilamide crystals placed in drained wounds are obviously not all absorbed; only in closed wounds is absorption rapid and complete. On the second day parenteral sulfanilamide is given in the saline in a dose of from 5 to 8 grams per day for two or three days. More recently we have given sodium sulfathiazole and sodium sulfadiazine as a 5 per cent solution every six hours, the total daily dose being about 7 to 10 grams in the adult. The advantage of the sulfathiazole over sulfanilamide lies in the fact that it has a beneficial effect on more organisms than does sulfanilamide, which is largely effective only against the streptococcus, and perhaps the B. coli. Sulfadiazine has the

advantage that it is less toxic and larger doses can be given. In the accompanying charts are three illustrative cases in which we believe a fatal outcome was prevented by the proper use of the sulfonamides.

Gastrointestinal Decompression.—Gastrointestinal decompression has been another very useful nonoperative procedure in the treatment of peritonitis. Here again, however, it must be used with limitations clearly in mind. In our experience it is difficult, if not impossible, to decompress the gastrointestinal tract completely in the presence of paralytic ileus even with the use of a Miller-Abbott tube for reasons already mentioned in discussing enterostomy. I doubt very much whether paralyzed small intestines can ever be emptied in this way. On the other hand, we always introduce a nasal catheter into the stomach because gastric decompression is not only possible but is also a most useful auxiliary method for keeping the gastrointestinal tract at rest inasmuch as gastric contents are evacuated continually and thus prevented from entering the duodenum and small intestine. Moreover, continuous gastric decompression prevents the development of acute dilatation of the stomach, a complication which, unfortunately, used to be prevalent either before or after abdominal operations, particularly in cases of general peritonitis. A nasal catheter also acts as a safety valve in that it permits early ingestion of fluids which, if retained without discomfort, indicate that oral feedings can be started.

SUMMARY

Perforative peritonitis is largely preventable by (1) removal of the acutely inflamed appendix before or as soon after its perforation as possible, (2) immediate operation on penetrating wounds of the peritoneal cavity and other perforating lesions, (3) careful abdominal surgery.

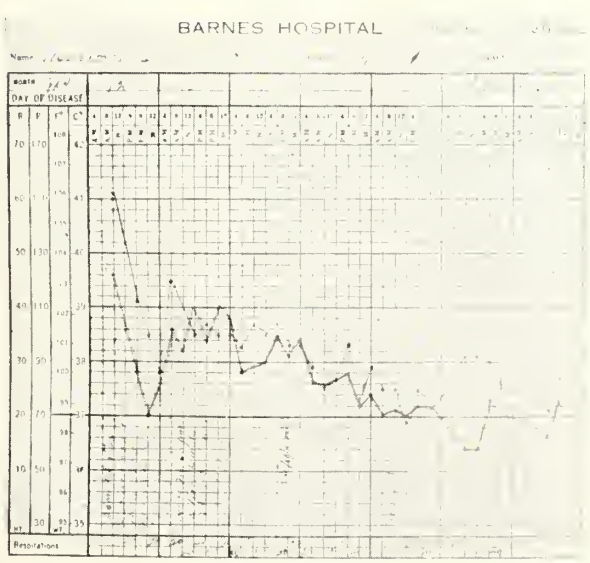


Fig. 1. Chart on case 1.

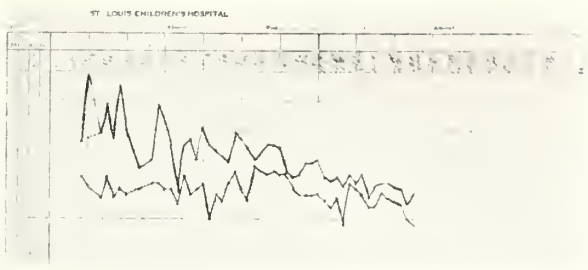


Fig. 2. Chart on case 2.

The treatment of perforative peritonitis is essentially surgical; delayed operation is less justifiable and drainage less indicated now than in former years. This change is due to the introduction of the sulfonamides, plasma transfusions and oxygen therapy, three nonoperative procedures which have effectively reduced the mortality from this dreaded infection.

REPORT OF CASES

Case 1. E. M. N. (Fig. 1.) An 18 year old school girl was admitted to Barnes Hospital, January 12, 1941, acutely ill, toxic and dehydrated, with temperature of 104 F, pulse 160, respiration 24, white blood count 14,500, urine normal. Tenderness and muscle spasm were pronounced in the right lower quadrant with slight tenderness elsewhere in the abdomen. At operation the peritoneal cavity contained turbid free fluid and the intestines were acutely inflamed. The appendix was acutely infected and perforated and bathed in pus. Following its removal 5 grams of sulfanilamide were dusted over the region of the cecum. The drug was added to the subcutaneous saline for three days following operation. The wound was closed without drainage. The postoperative course was entirely uneventful. Temperature fell to normal by the fourth postoperative day. The wound healed per priman and the patient was discharged on the eleventh postoperative day.

Case 2. J. L. W. (Fig. 2.) An 8 year old white female was admitted to St. Louis Children's Hospital on August 4, 1941, with a history of acute generalized abdominal pain, nausea and vomiting of thirty hours duration following an abdominal injury sustained in a fall in



Fig. 3. Chart on case 3.

which she landed on a sharp rock. The skin was unbroken. She was prostrated, dehydrated and toxic. Temperature was 100.5 F, pulse 122, respiration 32, white blood cell count 30,000. The abdomen was moderately distended, generally tender and rigid. Liver dullness was absent on percussion.

At operation, there was a general peritonitis originating from two perforations of the ileum approximately two feet from the ileocecal junction which were closed with silk sutures and 8 grams of sulfanilamide were dusted over the peritoneum and the wound was closed without drainage.

After the operation, the patient was placed in an oxygen tent, continuous nasal suction was instituted and a transfusion of 300 cc. of citrated blood was given. On the evening of the first day, intravenous sodium sulfathiazole was started (dosage 0.1 gram per kilogram of weight in 5 per cent solution in three divided doses per day) and continued for seven days. Because of general improvement, oxygen was discontinued on the second day, but after ten minutes out of the tent she became cyanotic and restless with accelerated pulse. She was, therefore, replaced in the tent for another two day period. Following this, recovery was complicated only by a subcutaneous wound infection and she was discharged in good condition on August 26, 1941.

Case 3. C. L. A. (Fig. 3.) A 9 year old white male was admitted to St. Louis Children's Hospital on August 7, 1941, with a temperature of 103.6 F, pulse 128, respiration 32, white blood cell count 16,500. He was acutely ill and toxic; the abdomen was distended and diffusely tender, the greatest tenderness being in the right lower quadrant with rigidity over both lower quadrants. At operation a perforated appendix was found and the peritoneal cavity contained a moderate amount of turbid fluid. After appendectomy, 6 grams of sulfanilamide were dusted into the peritoneal cavity and the wound which was closed without drainage.

After operation, the patient was placed in an oxygen tent and continuous nasal suction through a Levin tube was instituted. On the evening of the first day, intravenous sodium sulfathiazole was started (0.1 of a gram per kilogram of body weight in 5 per cent solution in three divided doses per day) and continued for five days when the temperature fell to normal. On the ninth day (not shown in the chart in figure 3) his temperature rose to 102.2 F and on rectal examination a hard, tender, indurated mass was felt. Three days later pus was found in the stool and the temperature returned to normal. Following this, he proceeded to an uneventful recovery and was discharged August 26, 1941.

Barnes Hospital.

CAUTIONS AGAINST INCREASED USE OF FIREWORKS ON JULY 4

Again cautioning "against any misguided sense of patriotism which might result in the increased use of fireworks on Independence Day 1942," *The Journal of the American Medical Association* says in its June 20 issue:

"From 1937 to 1941 inclusive the American Medical Association conducted annual summaries of injuries resulting from the celebration of the Fourth of July with fireworks. The information summarized was obtained from questionnaires addressed to hospitals throughout the country. The total number of injuries recorded in 1937 was 7,205 and in 1941 2,039, a significant reduction. The number of deaths decreased from 20 in 1937 to 11 in 1941. Throughout this period *The Journal* has stressed the fact that adequate control of this unnecessary source of death and injury is dependent not only on adequate state legislation but on enforcement of existing laws as well."

THE USE OF STORED BLOOD AND PLASMA IN CLINICAL PRACTICE

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ST. LOUIS

The past decade has witnessed the development of new technics in blood preservation, typing and utilization. Along with and, to a certain extent, dependent upon this new knowledge, has come the use of plasma, liquid, frozen or dried. Just as the first World War stimulated interest in blood transfusions, so this war will stimulate interest in blood and plasma preservation and utilization. There have been innumerable papers written on blood and plasma banking and many have discussed the advantages of plasma over fresh or stored blood. Some of these papers have stressed unduly, I believe, the ease of administration, availability and superior shipping and storage qualities. That blood might have been given with superior results and with less bother in many cases was ignored. To my mind, this emphasizes the influence the war has had on many investigators since the properties of plasma which they stress are primarily important from the military standpoint. Other investigators[1] in comparing stored blood and plasma have used blood which has been kept from coagulation by citrate alone, no particular effort having been made to preserve the red blood cells. Blood taken in citrate can be stored only for short periods of time, rarely more than from six to eight days, and if used after a longer period of storage will cause an increase in the incidence of reactions.

DeGowin,[2] as well as I,[3] have frequently pointed out that a special solution is required to preserve blood for longer periods of time. When this solution is used, preserved blood, stored for as long as thirty days, is satisfactory for most if not all clinical purposes. The widespread interest in plasma from a military standpoint and the unfavorable reports which have arisen from the use of improperly prepared blood stored too long has led to, what I consider, an unfortunate attitude on the part of many clinicians; namely, that plasma is equal or superior to stored blood for ordinary clinical use and they frequently insist that their hospitals produce plasma at considerable expense while discarding valuable red cells in the process. It seems much more logical to look upon the various substances such as blood and dried plasma as individual therapeutic aids, each having optimal indications. It is, of course, true that under certain circumstances plasma might be substituted for blood since it will serve in the emergency, but, it should be realized that the ability to act as a substitute does not necessarily make it ideal when substitution is not necessary.

It should not be overlooked that, when available,

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many military surgeons, for example, prefer the use of whole blood even when plasma is available. In this respect, I was interested in reports from Pearl Harbor. In discussions on brain surgery, definite mention was made of the use of whole blood as well as plasma. Similar reports are said to have come from the Russian front where blood, plasma and serum are all available. My experiences with banked preserved blood include the use of simple citrated stored blood but is limited since we changed to the use of the dextrose buffer citrate solution very early. This solution has been described previously.[4] This solution is a modification of the DeGowin solution which is a modification of the Rous Turner solution[5] (table 1). This solution gives, roughly, a 50 per cent dilution of the blood so that 1,000 cc. of fluid must be given if the patient is to receive 500 cc. of blood. Such dilution has the advantage of diluting the isoagglutinins and tends to reduce reactions ordinarily encountered in small numbers when blood transfusions are given. It does not, however, obviate the necessity for careful typing with high potency typing sera as well as very careful cross matching. This procedure can be done rapidly by the tube method. Agglutination in the cold at room temperature and at body temperature can be accomplished in the space of five minutes. By cross matching in the cold and at body temperature the exotic agglutinins recently described can usually be detected.

Table 1. *Dextrose Buffer Citrate Solution*

	Per Cent
Dextrose	4.68
Sodium citrate	0.43
Monobasic sodium phosphate	0.025
Dibasic sodium phosphate	0.25

The dextrose is dissolved in a small amount of distilled water and the buffer salts are dissolved in a separate container in small amounts of distilled water; the two are then mixed and sufficient water added to make up the proper amount. The whole is thoroughly mixed, one and one half parts of solution are used to one part of blood. Blood stored in this way will keep a minimum of thirty days.

The technic of preparation is most important. The solution should be made in fresh triple distilled water and analytic grade chemicals. The time of sterilization must be exact and should not exceed twenty minutes at fifteen pounds pressure. The preserving solution should be kept at 5 C. until used. If the solution is sterilized too long it will caramelize; if other precautions are ignored the solution may increase the rate of hemolysis.

Blood taken in the dextrose citrate buffer solution can be kept under refrigeration for as long as thirty days and still be suitable for transfusion. If, at the end of thirty days, the blood has not been used, it may be aspirated into a pooling flask without the necessity of centrifugation (fig. 1). The pool, which usually is made up of plasma from six to eight bloods, is allowed to stand overnight. It is cultured and if sterile is aspirated into the dispensing flask (fig. 2). Such plasma keeps well at ordinary refrigeration temperature. It has been given as long as a year after it was secured and could probably be given after even longer periods. This plasma contains from 3 to 4 grams of protein per 100 cc. and one can easily determine the dose to be given if one wishes to approximate the protein content of undiluted plasma or blood. It is obvious that by this method one has the advantages of large stores of blood, readily available, which, in turn, yield large amounts of plasma if the blood is not used. Studies done on blood stored in this fashion



Fig. 1. Pooling flask.



Fig. 2. Dispensing flask.

show that the platelets deteriorate promptly, complement is well maintained and the prothrombin slowly decreases so that at the end of thirty days half the original prothrombin is lost.[6] The white blood cells eventually disintegrate losing their power to phagocytize bacteria after about fourteen days.[7] The red cells remain intact and serve their usual function in an entirely satisfactory manner throughout the period of storage. The use of preserved blood and the plasma which finally comes from it has proven entirely satisfactory clinically and has, on the whole, caused fewer reactions than fresh citrated blood.

The second part of this paper will deal then with the clinical use of stored, preserved blood and liquid plasma. It will be shown that its application is wide, indeed, and if properly handled, fairly inexpensive.

HEMORRHAGE

Hemorrhage (table 2) the bugaboo of the surgeon and the physician alike, loses much of its terror if adequate amounts of blood are on hand. There can be little doubt but that blood is the best restorative in the presence of hemorrhage, whether shock is present or not. Plasma[8] is useful, however, if blood cannot be obtained since it restores blood volume, washes cells out of constricted capillaries in various storage spaces and thus enables the heart to maintain the circulation satisfactorily. Plasma can be given while blood is being obtained. In the treatment of hemorrhage in civilian practice plasma should be replaced by blood as soon as possible, that is, within ten minutes if stored preserved blood is available.

Table 2. *Hemorrhage*

Hemorrhage with shock	Hemoconcentration with diminished blood volume and increased total protein demands immediate transfusion with plasma followed by whole blood to assure a prompt return of the red blood cells to a noncritical level.
Without shock	Transfusion of whole blood is indicated. Plasma may be used but is only a substitute.

ANEMIA

The use of blood in anemia (table 3) should be limited to emergency use; that is, when the patient enters the hospital with such a low hemoglobin and cell count that the respiration of the body cells is seriously interfered with, or after a careful study has shown that transfusion is the proper treatment. Under no circumstances should it be given in place of more specific therapy. Such specific therapy presupposes careful diagnosis. In the normochromic, normocytic anemias, transfusions may be indicated to replace the lost hemoglobin, but a diligent search must be made to find the site of the blood loss or destruction.

Plasma is not satisfactory for the treatment of severe anemias except to restore blood volume since it does not replace the needed oxygen carrying cells. Experience has shown that preserved blood is satisfactory in aplastic anemias as well as in other types. On occasion preserved blood and fresh citrated blood have been used alternately in patients with aplastic anemia and they have been able to continue just as long on one type of blood as another. Symptomatically, they were unable to distinguish between the two. It is obvious from this that the life of properly handled stored cells is considerably longer than has been estimated.

Table 3. *Anemia**

a. Normocytic hypochromic or normocytic-normochromic	Preserved blood will supply the oxygen carrying portion of the blood, proteins, minerals and similar building stones if needed. Plasma is definitely inferior.
b. Hyperchromic-macrocytic	Serves the same purpose as fresh blood in improving the oxygen carrying power. Maturation factor must be supplied by liver, etc. Plasma only useful in restoring proteins, etc., therefore, inferior to whole blood.
c. Aplastic anemia	Preserved blood used on two cases of this type of anemia showed that the cells persisted about as long as blood given fresh. Intervals of two or three weeks elapsed between transfusions regardless of the kind of blood used.

*Anemia associated with infections, toxemias and malnutrition are best treated with whole blood. This is more or less obvious, although one sometimes gathers from the literature that plasma is satisfactory for this purpose.

There is, of course, considerable criticism of the use of preserved blood in various blood dyscrasias (table 4), but here again clinical trial has shown that a satisfactory response can be obtained. In the leukemias, the criterion for satisfactory response is the symptomatic improvement of the patient and the response of the patient's hemoglobin to the transfusion. If one can get a satisfactory response from preserved blood, there is no need to insist on the use of fresh blood. The advantage of the stored blood lies primarily in the fact that it can be taken from the donors at their convenience and all the donors which the patient can gather can be used. The proper type of blood can be secured from the bank; therefore, the type of the donor which the patient sends to the hospital is not important. In the bleeding diseases such as thrombocytopenic purpura, toxic purpura and similar conditions, the use of stored blood has proven satisfactory. There is, of course, loss of prothrombin from the stored blood and plasma unless the plasma is frozen or dried, but patients with purpura seldom have a deficiency of prothrombin. The platelets also disappear from the stored blood and plasma but they do so by disintegration, and these disintegration products probably serve a useful function in the clotting mechanism. In hemophilia the patient has plenty of platelets, but they are abnormal in that they fail to disintegrate promptly. The administration, then, of blood from normal individuals will

Table 4. *Blood Dyscrasias*

a. Leukemias Myelogenous Lymphatic Monocytic	Therapy is palliative and transfusions are only to be used in an attempt to secure the comfort of the patient. As in aplastic anemia, it has been found that the red cells persist equally well whether stored or fresh blood is used. The advantages of preserved blood are obvious if many transfusions are to be given to one person.
b. Bleeding diseases Thromocytopenic purpura Toxic purpura	Both plasma and blood tend to improve these conditions but since there is usually an associated anemia, blood is to be preferred. The platelet counts of both stored blood and plasma are insignificant but the breakdown products of the platelets persist and apparently improve the clotting, etc.
c. Hemophilia	Whole preserved blood will reduce bleeding time and restore the red count. Recently dried plasma has been reported as being successfully used.
d. Hypoprothrombonemia Jaundice Liver disease Gastrointestinal tract pathology	Whole fresh blood is needed if one attempts to replace the prothrombin in this way, stored blood contains only one half to one fourth as much prothrombin as fresh blood. Plasma contains less unless frozen plasma is used. Vitamin K is the most effective way to restore the prothrombin.

Table 5. *Hypoproteinemia*

Nutritional lack of protein intake Poor protein absorption Excess utilization or loss of protein	Plasma is to be used to improve the total proteins but only if the red count is below normal. If the red count is low and particularly if edema is also present the use of blood is best since the red cells tend to aid in increasing the osmotic pressure within the vessels.
Nephritis with and without edema	In these conditions again one can best use blood if the hemoglobin is below normal and plasma if it is normal.
Infection	In certain infections the proteins are low because of diminished intake and excessive loss in drainage fluid; e.g., empyema and excessive utilization because of high fever. In such cases blood is indicated if the hemoglobin is low and plasma if it is normal.

often aid in the control of hemorrhage in the hemophiliac. Preserved blood has been used on several occasions and has always produced improvement with decrease in the clot retraction time. Recently, a report[9] has appeared indicating that lyophilized plasma may also be effective in the treatment of this condition. Blood, however, would ordinarily be preferred since there is usually an associated anemia.

The fact that stored blood tends to lose its prothrombin has been emphasized by a number of authors.[10] When the dextrose citrate buffer solution is used, the prothrombin time of the stored blood gradually increases until after thirty days only from one half to one third of the original prothrombin remains.[11] This loss, however, can be serious only in those conditions in which the prothrombin time of the patient is prolonged and in whom the liver is so badly damaged that vitamin K cannot be utilized for the production of prothrombin. In such cases, fresh whole blood, newly prepared, or frozen plasma must be used. In all other cases of prothrombin deficiencies the lack can best be remedied by the use of vitamin K either by mouth or parenterally.

HYPOPROTEINEMIA

Hypoproteinemia (table 5), next to shock and burns, has received the greatest attention of those interested in plasma.[12] This is as it should be since it is undoubtedly true that plasma brings to the treatment of hypoproteinemia entirely new possibilities. Plasma being a complete protein makes it possible to keep the patient in nitrogen balance even if he has a very limited intake by mouth. It also increases the osmotic pressure within the vessels and aids in the reduction of edema which may be present. Gradually the injected proteins are utilized by the body and if sufficient quantities are injected so as to overcome protein loss the plasma proteins gradually will return to normal. It should be emphasized, however, that this elevation of the proteins takes place slowly, possibly because the injected protein is used to restore exhausted protein reserves and partly because the protein as injected must be catabolized and resynthesized into homologous proteins from the heterologous proteins injected. Whatever the reason, it almost always takes from three to seven days to get a definite increase in the total plasma proteins if large quantities are injected, and much longer if small quantities are used. In attempting to restore the plasma proteins from 30 to 60 grams of protein, as plasma, must be injected daily at the minimum depending somewhat on the size of the individual being treated. (This represents from 500 to 1,000 cc. of plasma daily.) It will be noted that the patient usually will begin to lose edema before the plasma proteins begin to rise so that improvement in the clinical condition of the patient usually antedates the rise in the proteins by several days.

It is well also in handling the hypoproteinemia patient to determine the hemoglobin level; if it is found to be low, blood will serve even better than plasma for restoration. Hypoproteinemia can be divided into those resulting from (1) insufficient intake of protein, (2) excess utilization or loss, and (3) failure of absorption. The treatment, of course, consists primarily of correcting the underlying cause, if possible, and supplying protein by the use of plasma or blood. Outstanding conditions which lead to hypoproteinemia are nephritis, with or without edema, cirrhosis of the liver, nephrosis, some infections, various malignancies, particularly of the gastrointestinal tract, various types of colitis and malnutrition. These conditions can be im-

proved and the patients benefited by the judicious use of plasma or blood.

PERIPHERAL VASCULAR COLLAPSE

Peripheral vascular collapse (table 6) may be thought of as identical with surgical[13] or traumatic

Table 6. *Peripheral Vascular Collapse*

Coronary occlusion Spontaneous pneumothorax Perforation or rupture of viscus Peritonitis Severe sepsis Acute cardiac failure Many other medical emergencies	This corresponds roughly to surgical shock. Too many fail to recognize this similarity. Blood or plasma transfusions are an important part of such treatment. Blood is to be preferred if the patient has anemia.

shock with the added difficulty that it is superimposed on a serious underlying pathologic condition which, in itself, may be difficult to control. Peripheral vascular collapse, or medical shock if you will, is perhaps the most important aspect of most medical emergencies. In many cases, its similarity to shock is overlooked and treatment is directed toward the heart, the respiratory system or the nervous system, while the treatment of the shock features, namely, hemoconcentration with increase total plasma protein, loss of fluid into the tissues and diminishing venous flow and anoxia, are neglected.

It is obviously impossible to give a detailed discussion of the various medical conditions which can produce peripheral collapse so only a few will be mentioned. Coronary occlusion, pulmonary emboli, spontaneous pneumothorax, perforation of a hollow viscus, peritonitis, severe sepsis and acute cardiac failure may all present the signs and symptoms of shock and may respond to the prompt use of appropriate therapy. Of the various measures which are useful, plasma in the presence of normal hemoglobin concentration and blood in the presence of low hemoglobin concentration are most important. Saline and suprarenal extract may also be found useful. The underlying cause should, of course, not be neglected.

CONCENTRATED PLASMA

Plasma dried by almost any of the accepted procedures may be reconstituted in from one fourth to one fifth of the volume of fluid removed. Such reconstituted plasma is, of course, hypertonic and has a definite place in the treatment of increased intracranial pressure, in certain burns and perhaps rarely in the treatment of severe shock and hypoproteinemia. I feel that the indications for the use of concentrated plasma are very limited and that, in most cases, one can treat the patient very well with the ordinary plasma which is available by ordinary methods. The increase in cost, labor and equipment will deter the ordinary civilian hospital from attempting the preparation of dried plasma. If occasion should arise for the use of concentrated plasma, it would probably be best and cheapest to purchase the material.

DISCUSSION

It has been my purpose in this paper to present a very simple and practical method for the development of a blood and plasma bank which should prove useful in civilian hospitals of all sizes and may even be developed in the physician's office since it requires no special equipment, is a closed system and is, therefore, relatively safe from the dangers of contamination. One of the greatest advantages is that centrifugation is unnecessary for obtaining a satisfactory yield of plasma when plasma is desired. I have attempted to point out the broad indications for blood and plasma in general practice. I should like to emphasize, at this time, that certain criteria should always be kept in mind; many have been pointed out in articles on shock and burns by various authors. The presence of hemoconcentration as manifested by a rise in the blood proteins and the specific gravity or by increase in the hematocrit or erythrocyte count should always indicate the need for prompt attention and initiate the necessary procedure to prevent the reduction of blood volume. I have also attempted to point out that one should not be misled into believing that what will do is always what is best. There is no doubt in my mind that plasma will prove lifesaving in cases of hemorrhage in which blood is not available, but there is also no doubt in my mind but that blood is superior in that kind of an emergency if it is available, and in civilian hospitals it should be available. I feel that plasma is indicated only in those conditions in which the use of whole blood would be undesirable.

CONCLUSIONS

There is available to the physician today a variety of substances suitable for the restoration of blood volume, plasma proteins and fluid balance. They include, among others, the solutions of crystalloid and electrolytes, fresh and stored blood as well as dried, frozen and liquid plasma. It is the physician's task then to determine which, if any, of these solutions is necessary for the welfare of the patient. He cannot look upon them as interchangeable substitutes nor is he justified in choosing the one which seems most easily made available or most simply given.

The new understanding of the shock mechanism and the underlying pathologic physiology brings new understanding of many of the common medical emergencies and emphasizes the need for treatment of the peripheral vascular collapse which so often exists.

Finally, the new advances in blood and plasma banking make possible a more satisfactory approach to the nutritional and metabolic diseases associated with diminished and depleted proteins.

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CARCINOMA OF THE SKIN

STATISTICAL ANALYSIS OF 560 BASAL CELL CARCINOMAS

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Whole tumor sections of tissues obtained in my practice were prepared by the laboratory of the Royal College of Physicians, Edinburgh, Scotland, under the direction of Col. W. F. Harvey. Of the first 1,779 specimens, 1,500 were suitable for statistical analysis after culling biopsies, gifts and spoiled and missing specimens.

Of the 1,500 tumor specimens, 923 (61.5 per cent) came from males and 577 (38.5 per cent) from females.

Histologic diagnoses were distributed as shown in table 1.

Of the 1,500 tumors, 560 (37.3 per cent) were basal cell carcinomas. Of these, 351 (62.7 per cent) were from males and 209 (37.3 per cent) from females. Since the proportion of males with basal cell carcinoma (62.7 per cent) was approximately the same as the proportion of males with any diagnosis (61.5 per cent), there was no sex predilection of basal cell carcinoma for either males or females.

Locations of basal cell carcinomas were distributed as shown in table 2, which also shows proportions of males and females for each location and indices indicative of location preferences and sex preferences for locations.

COMMENT

In preparing the material, each basal cell carcinoma was treated equally as a unit without regard to size. No effort was made to distinguish units which occurred in the same patient. Cases of epithelioma adenoides cysticum and tricho-epithelioma were called basal cell carcinoma.

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Table 1. *Histologic Diagnoses of 1,500 Cutaneous Lesions, Clinically Thought Neoplastic*

	Male	Female	Total	Total = Per Cent of 1,500
Basal cell carcinoma	351	209	560	37.32
Baso-squamous cell carcinoma[1]	24	11	35	2.33
Squamous cell carcinoma	337	58	395	26.31
Senile keratosis[2]	13	3	16	1.07
Squamous cell keratosis[3]	25	36	61	4.07
Intraepithelial carcinoma ("in situ")[4]	20	11	31	2.07
Spindle cell carcinoma[5]	0	4	4	0.27
Calcifying epithelioma[6]	1	2	3	0.20
Pigmented basal cell carcinoma[7]	3	4	7	0.47
Sebaceous cyst	7	14	21	1.40
Comedo	0	3	3	0.20
Hypertrophic fat gland[8]	2	1	3	0.20
Cylindroma[9]	0	2	2	0.13
Sebaceous adenoma[8]	3	2	5	0.33
Naevus sebaceus[10]	3	2	5	0.33
Cutaneous horn	7	1	8	0.54
Seborrheic keratosis[11]	25	40	65	4.33
Fleshy mole	1	6	7	0.47
Neurofibroma	5	6	11	0.74
Nevus-cell tumor	40	84	124	8.27
Melanoma	5	10	15	1.00
X-ray atrophy and scar	13	12	25	1.67
Keloid	0	2	2	0.13
Nodular subepidermal fibrosis[12]	5	23	28	1.87
Painful nodule of ear[13]	3	0	3	0.20
Synovial cyst[14]	1	1	2	0.13
Subungual exostosis[15]	0	2	2	0.13
Lipoma	1	2	3	0.20
Hemangioma	6	4	10	0.67
Sarcoma[16]	1	3	4	0.27
Mixed tumor[17]	0	1	1	0.07
Granuloma pyogenicum	7	13	20	1.33
Granuloma fissuratum[18]	0	1	1	0.07
Verruca vulgaris	8	3	11	0.74
Molluscum contagiosum	2	1	3	0.20
Cutis rhomboidalis nuchae[19]	4	0	4	0.27
	923	577	1500	100.00

"Scalp" included postauricular and mastoid areas. "Upper lip" included the cutaneous portion of the vestibula narium. "Cheek" included preauricular areas without regard to right or left. "Eyelid" included inner canthus without regard to upper or lower lids. "Trunk" included inguinal and breast areas. "Leg" included thigh, leg and ankle. "Arm" included arm, forearm and wrist. Row t (table 2) includes all areas in which there was no basal cell carcinoma in my collection, specifically the digital, genital, gingival, buccal, lingual and lower lip areas.

All percentage calculation was done with a slide rule and the third significant figure is doubtful.

Not all, but almost all, excised tumors were sectioned. Perhaps 90 per cent of all the tumors in my practice have been treated by excision rather than by irradiation. No lesion treated by irradiation alone was included in this study although biopsy usually was made, because the study is concerned with whole tumor sections.

The study of 296 basal cell carcinomas and of other carcinomas from the Pondville Hospital, Wrentham, Massachusetts, and the Huntington Memorial Hospital, Boston, by Schrek,[20] showed a similar distribution of these tumors: "Basal cell carcinoma prefers the upper part of the face, the nose and the ears." In my series, only 15 per cent of eighty-five lesions from the ear were basal cell

Table 2. *Basal Cell Carcinoma, 560 Cases (37.3 Per Cent) in 1,500 Specimens. Location, Sex Distribution and Indices of Location Predilection*

Row	Column	1	2 Per Cent	3	4 Per Cent	5	6 Per Cent	7	8 Per Cent	9	10 Per Cent	11	12 Per Cent	13 Per Cent	14 Indices Male	15 Indices Female	16 Sex
a	Temple	88	5.86	61	6.61	27	4.68	41	46.6	30	73.2	11	26.8	7.32	1.17	0.72	1.62
b	Forehead	52	3.47	16	1.77	36	6.23	24	46.2	7	29.2	17	70.8	4.29	0.47	1.90	0.25
c	Eyelid	61	4.06	40	4.34	21	3.64	47	77.0	31	66.0	16	34.0	8.39	0.96	0.91	1.13
d	Nose	232	15.47	120	13.00	112	19.43	157	67.7	82	52.2	75	47.8	28.06	0.83	1.27	0.65
e	Cheek	309	20.60	195	21.10	114	19.76	136	44.0	100	73.5	36	26.5	24.27	1.18	0.71	1.65
f	Upper lip	40	2.67	18	1.95	22	3.82	30	75.0	15	50.0	15	50.0	5.36	0.80	1.34	0.60
g	Chin	45	3.00	25	2.71	20	3.47	24	53.3	17	70.8	7	29.2	4.29	1.18	0.78	1.45
h	FACE	827	55.13	475	51.48	352	61.01	459	55.5	282	61.4	177	38.6	81.98	0.98	1.03	0.95
i	Ear	85	5.67	71	7.70	14	2.43	13	15.3	9	69.2	4	30.8	2.32	1.10	0.83	1.34
j	Scalp	56	3.73	37	4.00	19	3.30	26	46.5	20	76.9	6	23.1	4.64	1.23	0.62	1.97
k	HEAD	968	64.53	583	63.18	385	66.74	498	51.5	311	62.4	187	37.6	88.94	1.00	1.01	0.99
l	Neck	87	5.80	51	5.53	36	6.23	37	42.5	25	62.6	12	37.4	6.61	1.00	1.00	1.24
m	HEAD AND NECK	1055	70.33	634	68.71	421	72.97	535	50.7	336	62.8	199	37.2	95.55	1.00	1.00	1.00
n	Arm	38	2.53	13	1.41	25	4.34	6	15.8	3	50.0	3	50.0	1.07			
o	Hand	46	3.07	43	4.66	3	0.52	1	2.2	1	100.0	0	0.0	0.18	0.80	1.34	
p	Leg	23	1.53	6	0.65	17	2.95	1	4.3	0	0.0	1	100.0	0.18			
q	Foot	4	0.27	1	0.10	3	0.52	0	0.0	0	0.0	0	0.0	0.00			0.90
r	EXTREMITIES	111	7.40	63	6.82	48	8.33	8	7.2	4	50.0	4	50.0	1.43			
s	Trunk	130	8.67	48	5.19	82	14.18	17	13.1	11	64.7	6	35.3	3.02	1.03	0.95	
t	Other sites	204	13.60	178	19.28	26	4.52	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	xxx
	TOTALS	1500	100.00	923	100.00	577	100.00	560	37.3	351	61.5	209	38.5	100.00	1.00	1.00	1.00

Vertical rows of figures may be read as follows:

Column 1 gives the number of specimens of any diagnosis in each location. The total number was 1,500.

Column 2 gives the proportion of all 1,500 specimens which came from each location. The sum was 100.00 per cent.

Column 3 gives the number of specimens of any diagnosis from males in each location. The total number was 923.

Column 4 gives the proportion of specimens of any diagnosis from males comprised by the specimens from males that occurred in each location. The sum was 100.00 per cent of 923.

Column 5 gives the number of specimens of any diagnosis from females in each location. The sum was 577.

Column 6 gives the proportion of specimens of any diagnosis from females comprised by the specimens from females that occurred in each location. The sum was 100.00 per cent of 577.

Column 7 gives the number of basal cell carcinomas from each location. The sum was 560.

Column 8 gives the proportion of specimens of any diagnosis from each location comprised by the basal cell carcinomas from that location. Each figure was obtained by dividing the figure of column 7 by that of column 1. Reading vertically, column 8 is a comparison of the incidence of basal cell carcinoma in each location with the incidence of all tumors in that location.

Column 9 gives the number of basal cell carcinomas from males in each location. The total number was 351.

Column 10 gives the proportion of basal cell carcinomas from each location comprised by males with basal cell carcinomas from that location. Each figure is obtained by dividing the figure of column 9 by that of column 7. Reading vertically, column 10 compares the ratios of males with basal cell carcinoma in each location.

Column 11 gives the number of basal cell carcinomas from females in each location. The total number was 209.

Column 12 gives the proportion of basal cell carcinomas from each location comprised by females with basal cell carnomas from that location. Each figure is obtained by dividing ing the figure of column 11 by that of column 7. Reading vertically, column 12 compares the ratios of females with basal cell carcinoma in each location. For each location, the figure of column 10 plus that of column 12 is 100.00 per cent of the corresponding figure of column 7.

Column 13 gives the proportion of all basal cell carcinomas comprised by basal cell carcinomas in each location. Each figure is obtained by dividing the figure of column 7 by 560. The sum is 100.00 per cent of the 560 specimens of basal cell carcinoma. Reading vertically, column 13 compares the proportions of the 560 basal cell carcinomas in each location.

Column 14 gives indices of location preference for basal cell carcinomas among males. Each figure is obtained by dividing the figure of column 10 by 61.5 per cent, which is the proportion of males with basal cell carcinoma in any location. If the proportion of males with basal cell carcinoma in one location were the same as the proportion of males with basal cell carcinoma in all locations, the index would be 1.00. An index figure greater than 1.00 indicates relative location preference among males, and a figure less than 1.00 indicates relative location avoidance among males.

Column 15 gives indices of location preference for basal cell carcinomas among females. Each figure is obtained by dividing the figure of column 12 by 38.5 per cent, which is the proportion of females with basal cell carcinoma in any location. If the proportion of females with basal cell carcinoma in one location were the same as the proportion of females with basal cell carcinoma in all locations, the index would be 1.00. An index figure greater than 1.00 indicates relative location preference among females, and a figure less than 1.00 indicates relative location avoidance among females.

Column 16 gives indices of sex preference for various locations. Each figure is obtained by determining (a) the ratio of basal cell carcinomas in males in each location divided by the total number of males with basal cell carcinoma, i.e., 351; and (b) the ratio of basal cell carcinomas in females in each location divided by the total number of females with basal cell carcinoma, i.e., 209. Then (a) divided by (b) gives the sex preference index. Simply, the figure of column 9 is divided by 351, and the figure of column 11 is divided by 209; and the ratio of these would be greater than 1.00 if male were preferred in the location, and less than 1.00 if female were preferred.

Horizontal rows of figures may be read as follows:

Row a. Of 1,500 lesions, eighty-eight specimens were from the temple. These comprised 5.86 per cent of the 1,500 lesions. Of the eighty-eight temple lesions, sixty-one came from males. These sixty-one comprised 6.61 per cent of all lesions from males. Of the eighty-eight temple lesions, twenty-seven came from females. These twenty-seven comprised 4.68 per cent of all lesions from females. Thus lesions from the temple were removed in higher proportion from males than from females.

Of the eighty-eight lesions from the temple, forty-one were basal cell carcinomas. Basal cell carcinomas comprised 46.6 per cent of all lesions from the temple. Of these forty-one basal cell carcinomas, thirty were in males. Males comprised 73.2 per cent of the patients with basal cell carcinoma of the temple. Of the forty-one basal cell carcinomas of the temple, eleven were in females. Females comprised 26.8 per cent of the patients with basal cell carcinoma of the temple.

The basal cell carcinomas from the temple comprised 7.32 per cent of all the basal cell carcinomas. The temple was a slightly preferred location for basal cell carcinoma in the male. The temple was a slightly avoided location for basal cell carcinoma in the female. The temple was a preferred location for basal cell carcinoma in males as compared with females.

Row b. Of the 1,500 lesions, fifty-two came from the forehead. These comprised 3.47 per cent of the 1,500 lesions. Of the fifty-two forehead lesions, sixteen were from males. These sixteen comprised 1.77 per cent of all lesions from males. Of the fifty-two forehead lesions, thirty-six were from females. These thirty-six comprised 6.23 per cent of all lesions from females. Thus lesions from the forehead were taken in much higher proportion from females than from males.

Of the fifty-two lesions from the forehead, twenty-four were basal cell carcinomas. Basal cell carcinomas comprised 46.2 per cent of all lesions from the forehead. Of these twenty-four basal cell carcinomas, seven were from males. Males comprised 29.2 per cent of the patients with basal cell carcinoma of the forehead. Of the twenty-four basal cell carcinomas of the forehead, seventeen were from females. Females comprised 70.8 per cent of the patients with basal cell carcinoma of the forehead.

The basal cell carcinomas from the forehead comprised 4.29 per cent of all the basal cell carcinomas. The forehead was a definitely avoided location for basal cell carcinoma in the male. The forehead was a definitely preferred location for basal cell carcinoma in the female. The forehead was a definitely preferred location in females as compared with males.

Row c and the other columns may be read similarly.

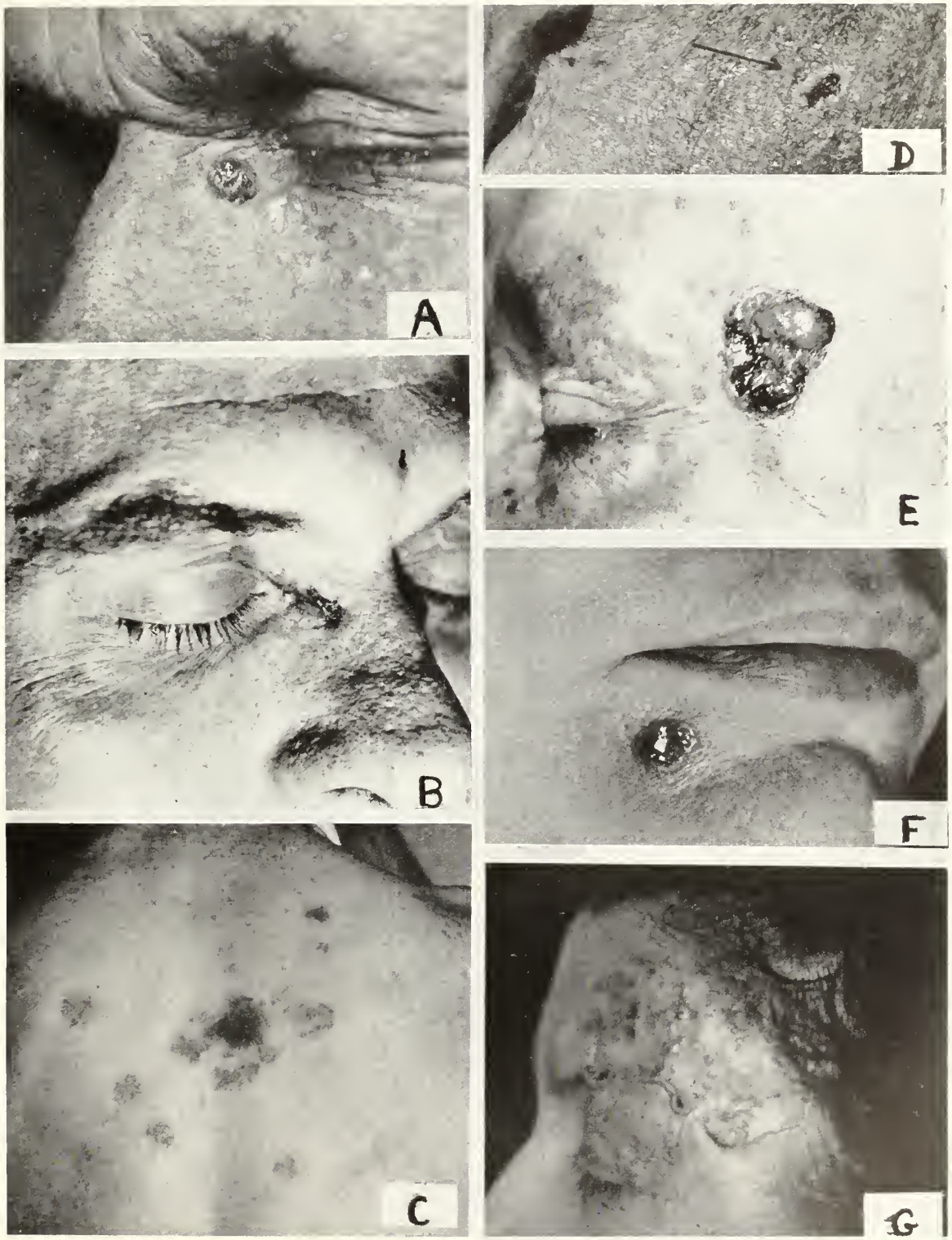


Fig. 1. Clinical varieties of basal cell carcinoma. (A) Small basal cell carcinoma of nose. (B) Invasive basal cell carcinoma of inner canthus. Such a lesion extends more deeply than one might think and requires intensive radiation or, preferably extensively destructive surgical therapy. (C) Multiple superficial basal cell epitheliomatosis. Lesions are scaly, sometimes oozing, psoriasiform plaques wholly unresponsive to topical applications. (D) Early basal cell carcinoma of neck, behind ear, showing beginning ulceration in center and typical, sharply circumscribed, waxy margin. (E) Well developed basal cell carcinoma of temple. Removal of crust reveals velvety, red surface and the usual pearly margin. See fig. 2A. (F) Basal cell carcinoma of the chin of a woman aged 45 years. (G) Morphea-like basal cell carcinoma, best managed by wide excision and grafting. Tumor cells pervade dermis, inducing cicatricial reaction, and in this type of lesion rarely provoke ulceration.

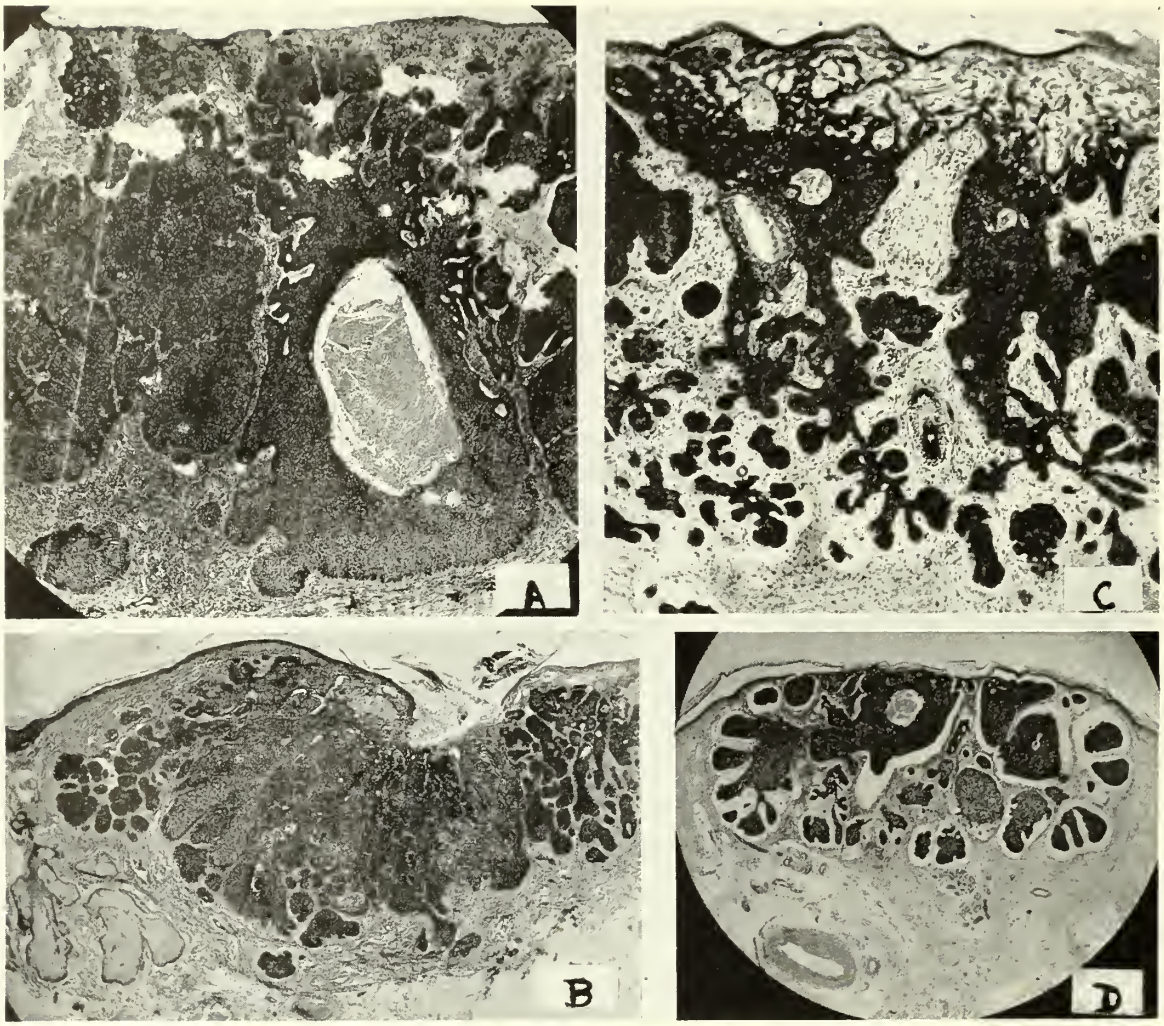


Fig. 2. Histologic variations of basal cell carcinoma. (A) Section through lesion seen in fig. 1E. Note mucinous degeneration in large mass of tumor tissue and cohesiveness of tumor tissue. The periphery of each mass is sharply delimited so that metastasis does not occur. (B) Whole tumor section of basal cell carcinoma, showing (1) ulcerated central zone, (2) microscopic evidence of lateral extension by tumor tissue which pushes aside dermal tissues, and (3) distinct margination of extension. This illustrates the rationale of wide excision, showing the existence of the possibility of complete removal provided the excision line goes through normal tissue wide of tumor cells laterally and beneath. (C) Section of basal cell carcinoma showing that the scaly surface consists of tumor cells, which comprise the epidermis rather than growing down from the epidermis. Note caricaturing of pilosebaceous apparatus by tumor strands. (D) Whole tumor section of tiny basal cell carcinoma from the nose.

carcinomas, while 46 per cent of such lesions were squamous cell carcinomas.[21]

CONCLUSIONS

Histologic diagnoses under thirty-six titles included all of 1,500 specimens which were thought clinically to be tumors of the skin. (Table 1.) There were 560 basal cell carcinomas. Basal cell carcinoma occurred without sex predilection.

The face was the site of 82 per cent of all basal cell carcinomas of the series. The head was the site of 88.9 per cent of all basal cell carcinomas. The head and neck together were the site of 95.6 per cent of all basal cell carcinomas. The trunk was the site of 3 per cent of all basal cell carcinomas. The extremities were the site of 1.4 per cent of all basal cell carcinomas. No basal cell carcinoma occurred on the foot, digits and genital or oral mucosal regions. (Table 2, column 13.)

Three quarters of all lesions removed from the eyelids and upper lip were basal cell carcinomas. More than one half of all lesions removed from the eyelid (77 per cent), upper lip (75 per cent), nose (67.7 per cent) and chin (53.3 per cent) were basal cell carcinomas, although basal cell carcinomas comprised only 37.3 per cent of all lesions. (Table 2, column 8.)

An apparently significantly higher proportion of all lesions from the temple, ear and hand were basal cell carcinomas in males than in females. An apparently significantly higher proportion of all lesions from the forehead, upper lip and trunk and extremities were basal cell carcinomas in females than in males. In other locations the proportions

were not apparently significantly different. (Table 2, columns 2 and 4.)

Among males, favored locations were the temple, cheek, chin and scalp. Among females, favored locations were the forehead, nose and upper lip. (Table 2, columns 14 and 15.)

Sex preference was evinced favoring males in scalp, cheek, temple, chin, ear and neck locations and favoring females in forehead, upper lip, nose and trunk and extremities locations. (Table 2, column 16.)

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DYSENTERY CARRIERS

Since it is only slightly absorbed into the blood stream, succinylsulfathiazole, a sulfonamide compound, is much less likely to produce severe toxic or poisonous reactions than sulfaguanidine in the treatment of dysentery carriers, William M. M. Kirby, M.D., and Lowell A. Rantz, M.D., San Francisco, report in *The Journal of the American Medical Association* for June 20. They found succinylsulfathiazole to be as effective in treating dysentery carriers as sulfaguanidine and as ineffective in treating typhoid carriers.

HOW SHALL WE TREAT FIBROIDS OF THE UTERUS?

WILLIAM H. VOGT, M.D.
ST. LOUIS

On first blush a discussion of the treatment of fibroids of the uterus would seem unnecessary. The subject in the minds of most physicians apparently has been settled some time ago. And yet, when one analyzes the matter more carefully one finds that there is still considerable confusion as to the proper treatment. To say that all fibroid uteri should be removed would simplify the problem but at the same time would sacrifice many uteri unnecessarily and subject many a woman to a mutilating operation which might be spared her. The treatment of uterine fibroids plays a large role in gynecologic practice. Modern treatment of this condition is expectant, surgical or radiologic and a correct decision as to the type of treatment for the particular case depends on an intelligent appreciation of the pathologic condition and the clinical behavior of these tumors.

Let me first consider the expectant treatment. This consists of watching patients who in one's opinion do not require immediate radical intervention. It consists also of careful routine examination and the control of excessive blood loss. It must be remembered that many fibroid tumors, even during the active sexual period, become neutralized in their growth and remain perfectly innocuous or innocent tumors for the rest of the patient's life. Then, too, one must not forget that all fibroids undergo atrophic changes, frequently becoming smaller during the natural or artificial menopause, and that such tumors may or may not remain harmless.

With these facts in mind it does not seem necessary to treat every fibroid that one encounters but it is extremely important to be guided by certain principles in deciding which tumors to leave alone.

The first rule is that only symptomless tumors should receive expectant treatment. This is the converse of the rule that all symptom-producing fibroids should be treated. It, however, does not mean that all symptomless tumors should be let alone because some of the most dangerous tumors are, when first discovered, entirely without symptoms.

One then comes to the question of when shall fibroids be left untreated? This brings one to the second cardinal rule that only small fibroids should be treated expectantly. What is meant by a small tumor? This definition involves the law of relativity and with it the coordinates of space and time. Let me give an example. A tumor the size of a lemon or even somewhat larger on the fundus of the uterus would be regarded as small, whereas, a tumor of the same size situated in the lower uter-

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ine segment would be large because the growth in the fundus, during the active sexual life of a woman, could be watched with safety for if it should grow it could still be removed by myomectomy without increasing the danger of the operation or increasing the likelihood of hysterectomy.

The tumor in the lower uterine segment, if it were not yet giving symptoms, could not grow in this position for long without doing so. Then, again, this tumor, in the event of pregnancy, particularly if it grew, could readily offer an obstruction to the presenting part during labor requiring a cesarean section and perhaps a hysterectomy.

The third law concerns the age of the patient and the growth of the tumor. It is to be remembered that from the late thirties small subserous and interstitial fibroids, even when they are multiple, do not in the majority of instances increase to any dangerous size and therefore might be treated expectantly. However, since some of these tumors do occasionally grow to great size in this age group, expectant treatment must include careful watching by periodic examinations.

On the other hand, small tumors during the twenties and the early thirties usually do grow and are apt to attain large proportions which would require hysterectomy. Procrastination, therefore, in the active treatment of small growths will sometimes seal the fate of the uterus that might have been saved by timely interference. The possibilities of secondary sterility and complications of pregnancy must be considered. In young women, therefore, it is advisable to remove small tumors by myomectomy even when they are producing no symptoms.

How shall large symptomless fibroids be treated? In my opinion, they should never be treated expectantly but always surgically, except when serious constitutional complications make surgical intervention too dangerous.

Based on the common belief that the tumors will shrink or disappear at the time of the menopause women too often are advised to leave large fibroids alone and wait for the false benefits of the menopause. It is true that the tumors frequently do become smaller during the change of life, but they do not disappear nor does this period lessen their inherent tendency to degenerate. Again large fibroids rarely remain symptomless for any length of time and this is true before the menopause as well as after it. To wait for the change of life is bad advice and is based on a faulty knowledge of the pathology and the clinical behavior of these tumors.

The medical treatment of fibroids can be dismissed with the statement that it is of no value other than for the purpose of putting the patient in the best possible condition for a future operation. This includes attention to the heart, lungs, kidneys and the use of blood transfusions to overcome any existing anemia.

The surgical treatment is either radical, in which the uterus is removed with or without the adnexa and with or without the cervix, or conservative, in which the tumors are removed separately and the uterus is left in situ (myomectomy).

After the menopause surgery is the treatment of choice in all tumors that require treatment. Included in this group would be tumors that are producing symptoms or those that are undergoing degeneration. Hysterectomy is the operation of choice except for pedunculated submucous tumors which should be removed by vaginal myomectomy on account of the danger of peritonitis from streptococcus infection; if other tumors are present in the uterus, hysterectomy may follow later.

In the child-bearing age myomectomy is one of the most satisfactory gynecologic operations if the case is properly selected. It is, however, not a simple operation and it requires a great deal of surgical skill. When this operation is done in a case of bleeding due to gland dysplasia, the operation may fail to stop the bleeding and this possibility must always be kept in mind. If the case is one of dysfunctional bleeding, hysterectomy rather than myomectomy would be the operation of choice.

Hysterectomy in young women should always be looked upon as a tragedy and should never be done unless absolutely unavoidable. Most cases of fibroids in young women who come to hysterectomy do so because of neglect or improper advice.

Whether or not to remove the ovaries during the sexual period brings up again a controversial point in the performance of a hysterectomy.

It has been definitely shown that the ovaries undergo the same changes after hysterectomy as when a woman stops menstruating normally. The ovaries will function for from five to six years after the uterus has been removed and then they cease functioning. This then would be a good reason for not removing the uterus much before the age of 40 years. If, on the other hand, a hysterectomy becomes necessary during the sexual life of a woman, it is my opinion that one or both ovaries should be saved if possible even though one could not expect the effect of ovarian function to last more than five or six years.

Another point of considerable controversy is whether or not to include the removal of the cervix in the operation. The question of the later development of carcinoma in the cervical stump is of great importance. Statistics as to the incidence of this condition vary, but Ward's experience of about 6 per cent of carcinoma of the cervical stump deserves careful consideration. It must, of course, be remembered that some of these cases had an undiscovered carcinoma at the time of the operation.

It is true that supravaginal hysterectomy is simple, rapid and more or less bloodless and can be done by the average operator with great safety. Complete hysterectomy, when done by the average operator, is more difficult and fraught with a higher mortality and morbidity. These are, in my opinion, weak excuses because the gynecologist should develop his skill in such a manner that the mortality and morbidity should be no higher in the total than

in the subtotal hysterectomy; his inability to do this does not excuse the performance of the simpler and easier operation when such a procedure, leaving the cervix, may be followed by a carcinoma at a later date.

Abdominal operations are preferred for most patients and by most operators because they can be performed with better visualization; however, in the hands of experienced operators vaginal hysterectomy may involve even less risk than the abdominal operation. The vaginal route should not be selected if the tumor is very large. It is likewise contraindicated when severe pelvic adhesions are suspected. The operation is much easier to perform in the multiparous woman with relaxed vaginal outlet and it is, therefore, particularly indicated in such patients who require vaginal and perineal repair, thereby avoiding a combined vaginal and abdominal operation.

I do not as a rule favor vaginal myomectomy except in cases in which a submucous myoma can be removed in toto or in cases in which it is desirable to control or arrest the bleeding and thereby give the woman an opportunity to recover from her anemia, and in cases in which the tumor is infected. As has been previously stated, abdominal or vaginal hysterectomy in the presence of infection is contraindicated because of the danger of peritonitis.

The indications for the radical or the conservative operations are reasonably clear cut, but radiation therapy must be considered since it sometimes has an important usefulness.

In the early years, when radium was used in the treatment of this condition, all types of cases were treated by this method with varying degrees of success and with not a few fatalities, and it was soon decided that a more careful selection of cases would become necessary if radium was not to fall into general disrepute.

The chief indication for the use of radium is the alleviation of bleeding, but not necessarily the disappearance of the tumor. One of the chief disadvantages of radiation treatment is that the rays are not specific for, or limited to, the new growth and the function of the ovaries is definitely disturbed. Therefore it should not be used in young women.

Radiation therapy, chiefly in the form of radium, is employed with great success in the menopausal years for abnormal bleeding associated with smaller fibroids. If the fibroids are small and do not project into the uterine cavity, radium is a very efficacious remedy and is particularly indicated when the patient is a poor surgical risk. It must, however, be given in doses sufficiently large to destroy the function of the ovary.

Radium is contraindicated when the tumor is large, 12 cm. or more in diameter, or when it is pedunculated or submucous. It must not be used in rapidly growing tumors or those which are undergoing degeneration. The presence of infection in the pelvis, the existence of an accompanying pregnancy, the presence of other tumors, as ovarian cysts, and the presence of pressure symptoms are all contraindications for its use.

When contemplating the use of radium, a curettage always should be done first to determine the possible existence of a malignancy which would modify the dosage and the method of application of radium.

There is still some difference of opinion as to the comparative merits of radium and roentgen ray. It is my opinion that the intra-uterine application of radium is preferable to the use of roentgen rays since it has certain definite advantages. Chief among these is the opportunity afforded for making a more careful examination and for exploring the uterine cavity under anesthesia. Another advantage is that radium acts chiefly upon the uterine and new growth tissue and its action upon the ovaries is less than that of deep roentgen ray.

Finally, the treatment of myomata complicating pregnancy should receive some mention in this discussion. When pregnancy occurs in the presence of fibromyomata the tumors are apt to undergo certain changes. Just as the muscle fibers in the uterine wall are stimulated to growth during pregnancy, as a result of hormonal influence, so, too, are the muscle cells of the tumor stimulated and increased size of the new growth may be expected. The many complications which can arise during pregnancy such as degeneration, particularly red degeneration, the possibility of torsion of a pedunculated tumor, the likelihood of the tumor becoming incarcerated in the pelvis and thereby producing severe pressure symptoms and obstruction to the progress of the labor, the frequent occurrence of abnormal presentations and many other complications should lead one again to the consideration of prophylactic measures; viz., the removal of small or larger tumors in women in the child-bearing age before these tumors have had a chance to produce these various and sometimes fatal complications.

Fortunately, the majority of such cases go through labor and the puerperium without any serious trouble but in those instances in which there is definite interference with uterine contractions or in which there is obstruction of the birth canal or in which there is the added complication of faulty presentation of the fetus, cesarean section may become necessary. Following the section a hysterectomy or myomectomy may be indicated. Occasionally, a myomectomy of a moderate sized tumor can be done without causing an abortion but only small pedunculated tumors with good pedicles should be so treated. To attempt to peel out an interstitial fibroid from a pregnant uterus is inadvisable and dangerous because it is impossible to control the bleeding from the large uterine veins.

The treatment of fibroids, therefore, cannot be classed under one common heading and each individual case must be studied carefully. A proper selection of the type of treatment will determine the end results.

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JULY, 1942

EDITORIALS

ATLANTIC CITY SESSION OF THE AMERICAN MEDICAL ASSOCIATION

The Ninety-third Annual Session of the American Medical Association convened in Atlantic City with 8,238 physicians registered, a much larger attendance than was expected. The only Atlantic City Session which had surpassed this attendance was the 1937 Session with 9,764 physicians present. There were ninety-two Missouri physicians present.

An outstanding feature of the Session was the attendance of 140 physicians from the Latin American countries and Canada. There were fifty-six from Canada, thirteen from Brazil, eleven from Cuba, ten from Colombia, nine from Argentina, seven from Mexico, seven from Chile, five from Venezuela and smaller numbers from Costa Rica, Peru, San Salvador, Haiti, Uruguay, Bolivia and Paraguay. Guests were also in attendance from South Africa, Persia, China, Greece and British Guiana. One of the general scientific meetings was devoted to addresses by the inter-American guests. One session was devoted to problems connected with the war and another to problems of general clinical importance.

The House of Delegates was concerned principally with problems of organization leading to improved functions of the Association, problems related to the war and medical service plans.

Missouri was represented in the House of Delegates by Drs. A. R. McComas, Sturgeon; R. E. Schlueter, St. Louis; Rex L. Diveley, Kansas City, and W. L. Allee, Eldon. Dr. A. R. McComas served on the Reference Committee on Reports of Board of Trustees and Secretary, and Dr. R. E. Schlueter on the Reference Committee on Executive Session.

Dr. James E. Paullin, Atlanta, Georgia, was elected President-Elect of the Association. Dr. Paullin was chairman of the Council on Scientific Assembly and his term would have expired next years. He is retiring president of the American College of Physicians and is a member of the board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. He was a major in the Medical Corps of the Army in 1918 and 1919.

Dr. Frank H. Lahey, Boston, presided as President at the Atlantic City Session and Dr. Fred W. Rankin, Lexington, Kentucky, was installed as President at the Session and will preside at the San Francisco Session in 1943. Dr. Paullin will preside at the St. Louis Session in 1944. New York was chosen as the meeting place for 1945.

Other officers elected at the Session were: Vice President, Dr. William J. Carrington, Atlantic City; Secretary, Dr. Olin West, Chicago; Treasurer, Dr. Herman L. Kretschmer, Chicago; Speaker of the House of Delegates, Dr. H. H. Shoulders, Nashville; Vice Speaker of the House of Delegates, Dr. R. W. Fouts, Omaha; Board of Trustees, Drs. Edward M. Pallette, Los Angeles, and R. L. Sensenich, South Bend; Judicial Council, Dr. Lloyd Noland, Fairfield, Alabama; Council on Medical Education and Hospitals, Drs. Reginald Fitz, Boston, Clyde L. Cummer, Cleveland, and Edward L. Bortz, Philadelphia.

AVERAGE AGE AT DEATH OF PHYSICIANS IN THE UNITED STATES DURING 1941 WAS 65.9 YEARS

The average age at death of physicians in the United States in 1941 was 65.9 as compared with 66.3 in the previous year, *The Journal of the American Medical Association* reported in its June 13 issue. Heart disease again was shown to be the leading cause of death. *The Journal* says:

"Last year 3,527 obituaries of physicians were published in *The Journal*. Of the total 3,354 were residents of the United States and 173 of Canada. Two physicians died in Puerto Rico, 3 in the Philippine Islands, 2 in Hawaii and 1 in China. One was killed in West Africa while serving as captain in the British Army. The total group included 122 obituaries of women physicians.

"Some obituaries are reported too late for publication and some are withheld for lack of suitable data with which to compile a satisfactory notice. Thus 241 more deaths were totaled in the American Medical Directory Report Service, including the United States, possessions and Canada, than were listed in 1941 in *The Journal*. A total of 3,460 is considered here for the United States alone or 106 more than the 3,354 deaths reported in *The Journal*.

"For the academic year ended in June 1942 there were 5,275 graduates of medical schools in the United States. Deducting the number of physicians whose obituaries were published, there was an indicated net increase to the profession of 1,921. Including those who received their first license to practice medicine during the calendar year, there was a gain of 2,327. This difference is accounted for principally by graduates of foreign schools.

"*Age.*—The average age at death of those classified as of the United States was 65.9 as compared

with 66.3 years for a total of 3,450 deaths published in 1940. Thirty physicians died between the ages of 25 and 29, 42 between 30 and 34, 72 between 35 and 39, 102 between 40 and 44, 151 between 45 and 49, 210 between 50 and 54, 361 between 55 and 59, 459 between 60 and 64, 510 between 65 and 69, 518 between 70 and 74, 413 between 75 and 79, 299 between 80 and 84, 131 between 85 and 89, 50 between 90 and 94, 1 between 95 and 100, and 4 were 100 or over. The exact age of death was unknown in 1 case.

"*Causes.*—Heart disease again accounted for the greatest number of deaths among physicians. As is customary, contributory causes have been included in the tabulation. Coronary thrombosis and occlusion led the list with 1,034 deaths. Other coronary diseases totaled 119. Other diseases of the heart and circulatory system accounted for 781 deaths. Four hundred and two were classified under cerebral hemorrhage and 353 under arteriosclerosis. Cancer and tumors in various forms accounted for 328 deaths. Tuberculosis was designated the cause in 39 deaths, diseases of the blood and lymphatic system in 35, diabetes in 56, bronchopneumonia in 197, lobar pneumonia in 58, other diseases of the respiratory system in 62, allergy and asthma in 5, appendicitis in 14, peptic ulcers (stomach or duodenum) in 26, other diseases of the gastrointestinal tract in 107, cirrhosis of the liver in 41, acute nephritis in 26, chronic nephritis (including cardiovascular renal and cardiorenal disease and uremia) in 219, diseases of the genito-urinary system in 36, bacteremia and other infectious diseases in 39, influenza in 24, abscesses and carbuncles in 10, acute and chronic rheumatism in 6, diseases of the thyroid in 2, postoperative in 21, Addison's disease in 1, alcoholism in 3, poliomyelitis in 3, pulmonary embolism in 16 and other ill defined or unspecified causes and senility in 90. Each of the following accounted for 1 death: typhus fever, toxemia of pregnancy, tetanus and heat prostration. Two deaths were attributed to Rocky Mountain spotted fever.

"*Accidental Deaths.*—There were 152 accidental deaths in 1941. Automobile accidents accounted for 83 deaths as compared with 105 in 1940. Other accidents were falls 21, burns 7, airplane accidents 6, drowning and poison 4 each. One death was recorded in a train accident, and 4 involved automobile and train collisions. Twelve unexplained fractures were included in the accidental deaths. One physician was killed when he fell down an elevator shaft, and another was electrocuted by a short circuit in an x-ray machine. One accidental death was ascribed to x-ray burns. Bullet wounds, carbon monoxide, explosions, overdoses of medicine and asphyxiation were among the causes of accidental deaths classified in 1941 reports.

"*Suicides and Homicides.*—Suicides accounted for 67 deaths in 1941. Bullet wounds led the list with 25. Carbon monoxide, poison and drugs were next in classification of method with 7 deaths each, hanging 6, cut artery 5, illuminating gas 3, drowning 1, and 1 death occurred from a fall. In 5 cases the method was not reported. Four homicides were recorded.

"*Civil Positions.*—Among the decedents were 191 physicians who were or had been teachers in medical schools, 518 who had served in World War I, 57 veterans of the Spanish-American War and 5 Civil War veterans. One hundred and twenty-three physicians were or had been health officers, 101 members of boards of education, 86 members of boards of health and 21 members of boards of medical examiners. There were 58 coroners, 44 mayors, 32 authors, 31 bank presidents, 17 editors and 17 legislators, 14 police surgeons, 13 missionaries, 12 dentists, 11 members of city councils, 9 pharmacists, 8 senators, 7 clergymen, 6 lawyers, 5 postmasters, 4 fire surgeons, 1 sheriff, 1 justice of the peace and 1 governor. One was a member of the U. S. Pharmacopeia and 1 was a member of the state board of agriculture. One had formerly served as a British vice consul.

"There were 19 who have served in the regular medical corps of the U. S. Navy, 17 served in the regular corps of the U. S. Army, 19 in the U. S. Public Health Service, 7 in the Veterans' Administration and 4 in the Indian Medical Service.

"*Association Officers.*—Among those who died, 1 had been President of the American Medical Association, 2 had been Vice Presidents, 19 section officers and 4 members of councils. Thirty-nine had been members of the House of Delegates, 38 presidents of state medical associations and 4 secretaries. One hundred and eighty-seven were or had been presidents of county medical societies."

NEWS NOTES

Dr. C. E. Burford, St. Louis, was installed as President of the American Urological Association at the annual session of the association held in New York, June 1 to 4.

Dr. O. Jason Dixon, Kansas City, was a guest of the State Medical Association of Texas at its annual meeting in Houston, May 12, 13 and 14. He spoke on "Newer Methods in Management of Mastoid Disease," "Ear Complications in Relation to General Practice" and "A Surgical Procedure for the Treatment of Deafness and Tinnitus."

Dr. Warren H. Cole, Chicago, was the guest speaker at the annual dinner meeting of the St. Louis County Medical Society held May 20, and spoke on "Recent Advances in the Recognition and Treatment of Appendicitis." Dr. E. J. Schisler, St. Louis, Vice President of the Missouri State Medical Association, spoke and Dr. Robert Mueller, St. Louis, Missouri State Chairman of the Procurement and Assignment Service, discussed the Procurement and Assignment Service.

DEATHS

Halsey, Thomas Jefferson, M.D., Butler, a graduate of the Vanderbilt University School of Medicine, Nashville, 1893; member of the Bates County Medical Society; aged 75; died February 26.

Parmer, John Elvin, M.D., Mokane, a graduate of the University of Missouri School of Medicine, Columbia, 1894; honor member of the Callaway County Medical Society; aged 73; died March 16.

Matthews, Francis H., M.D., Liberty, a graduate of the University Medical College of Kansas City, 1900; member of the Clay County Medical Society; aged 76; died March 23.

ORGANIZATION ACTIVITIES

COMMITTEE ON STUDY OF CARDIAC DISEASES

The Committee on Study of Cardiac Diseases, consisting of Dr. J. DeVoine Guyot, Jefferson City, Chairman; Dr. A. Graham Asher, Kansas City, and Dr. Julius Jensen, St. Louis, met in Jefferson City on May 31. Many preliminaries of the work of the Committee were discussed. The Committee asks that members of the Association interested in cardiology communicate with the Committee and offer suggestions for the work of the Committee.

MISCELLANY

PROFESSIONAL LIABILITY FOR MILITARY SERVICE

Physicians entering the Army or Navy as medical officers should arrange to continue professional liability insurance coverage, the Bureau of Legal Medicine of the American Medical Association has advised. An editorial in the *Journal of the American Medical Association* of September 13, 1941, discusses malpractice actions against Army Medical Officers and examining physicians for local selective service boards as follows:

"A person in the military service may claim that an officer of the medical corps has in some manner been guilty of malpractice in treating or examining him in the line of duty. A similar claim for alleged malpractice may be pressed against an examining physician for a local Selective Service board by a selectee called before that board. The fact that a person is in the military service, or is in the course of being inducted there, does not prevent him from asserting his civil rights as long as the interests of the service or of national defense are not concerned. Hence the Judge Advocate General of the Army has held, quite properly, that members of the Army are entitled to the same civil rights of action between one another with reference to suits for malpractice or negligence as they would have in civil life.[1] Without doubt the same degree of care, diligence and professional ability required of any physician with respect to the care of patients in civilian life is required by law of a medical officer of the Army or of an examining physician for a local board in his care of examination of a member of the service or of a selectee called for the purposes of induction. For a departure from such standards resulting in harm to the patient the medical officer or the examining physician would be liable in a civil suit by the aggrieved patient the same as though both the patient and the physician were in civil life. The medical officer, then, in the Army and the physician acting for a local Selective Service board by virtue of his service or function stands in no different position with respect to answerability to his patients from that of a physician acting solely in a civil capacity.

"However, were a malpractice claim to be pressed against an Army medical officer or an examining physician for a local board for alleged malpractice in the performance of his official duties the government itself would no doubt provide defense for the physician accused. It has been the practice of the Attorney General in the past to provide, on the request of an interested government department or agency, defense for government officers or agents in civil suits arising out of the activities in the course of the discharge of their official duties. A communication from the office of the Judge Advocate General of the Army dated May 1, 1941, indicates that in the past the War Department itself has not undertaken the defense of a civil suit for malpractice brought against a member of the medical corps but that the defendant medical officer has had the right to have the case removed to a federal court and to be defended by a United States attorney designated by the Department of Justice. If, however, according to this communication, a judgment was to be rendered against such a medical officer, there is no provision by law by which the judgment could be paid by the government or by which the defendant physician could be reimbursed by the government.

"Similar defense in all probability would be available to a physician examining for a local Selective Service board, accused of malpractice in connection with his duties for the local board. If such a suit is filed, a communication from the Selective Service system states:

"The National Selective Service System will act as follows:

"1. Request the Attorney General to instruct the United States District Attorney to appear on behalf of the United States Government or to assign a special representative of the Attorney General's office to the case.

"2. Supply expert medical testimony from our own staff.

"3. Request outstanding experts to testify without expense to the individual being sued.

"4. Cooperate in a reexamination of the registrant if such is deemed desirable.

"5. Do anything else which is within our power to assist in a thorough and complete presentation in the case in order to make certain that no unjustified claim shall succeed and,

"6. If a judgment is secured, present a bill to Congress and recommend its adoption, looking toward the paying of the judgment by the United States Government.

"While the defense measures indicated that will be available to medical officers and examining physicians for local boards will undoubtedly be helpful, physicians concerned cannot safely discontinue such forms of malpractice insurance protection as they previously have carried. In the communication previously referred to, the Judge Advocate General's office states that malpractice suits by persons in military service against members of the medical corps have thus far been quite rare. Therefore, since patriotic cooperation may be expected from all persons and corporations during the national emergency, especially favorable premium rates should be obtainable from insurance companies for policies to protect physicians in the service and local board physicians against claims for malpractice that may rise from the performance of their duties to the service and to the national government."

1. J. A. G. 707, March 6, 1934.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

Moniteau County Medical Society, December 23, 1941.

Miller County Medical Society, December 26, 1941.

Chariton County Medical Society, December 29, 1941.

Montgomery County Medical Society, January 20, 1942.

Holt County Medical Society, January 26, 1942.

Dallas-Hickory-Polk County Medical Society, January 28, 1942.

Butler County Medical Society, February 21, 1942.

Scott County Medical Society, February 21, 1942.

Cass County Medical Society, March 5, 1942.

Lincoln County Medical Society, March 5, 1942.

Johnson County Medical Society, March 13, 1942.

Macon County Medical Society, March 24, 1942.

Webster County Medical Society, March 28, 1942.

Morgan County Medical Society, April 1, 1942.

Franklin County Medical Society, April 13, 1942.

Barry County Medical Society, April 18, 1942.

DeKalb County Medical Society, May 1, 1942.

Christian County Medical Society, June 4, 1942.

MISSOURI STATE MEDICAL ASSOCIATION

Eighty-Fifth Annual Session

Kansas City

April 27, 28, 29, 1942

MINUTES OF THE HOUSE OF DELEGATES

Municipal Auditorium

Monday, April 27, 1942

Morning Session

The first meeting of the House of Delegates of the Eighty-fifth Annual Session of the Missouri State Medical Association was called to order at 9:30 a. m. in the Municipal Auditorium, Kansas City, by Dr. Harry L. Jones, Kansas City, Vice President, in the absence of the President, Dr. R. B. Denny, Creve Coeur, who was unable to attend because of illness.

A quorum was reported present.

Officers, Councilors and Delegates who were present during the Annual Session follow:

Officers

Vice President	Harry L. Jones, Kansas City
Vice President	M. D. Overholser, Columbia
President-Elect	H. L. Kerr, Crane
Executive Secretary	E. H. Bartelsmeyer, St. Louis

Councilors

1st District	A. S. Bristow, Princeton
2nd District	H. B. Goodrich, Hannibal
3rd District	Curtis H. Lohr, St. Louis
4th District	C. E. Fallet, DeSoto
5th District	W. A. Bloom, Fayette
6th District	A. J. Campbell, Sedalia
7th District	F. I. Wilson, Kansas City
8th District	W. Wallis Smith, Springfield
9th District	E. C. Bohrer, West Plains
10th District	E. J. Nienstedt, Sikeston

Delegates

Andrew	Virgil R. Wilson, Rosendale
Audrain	J. F. Harrison, Mexico
Barry	F. T. Kerr, Monett
Barton	V. T. Bickel, Lamar
Bates	R. H. Smith, Rich Hill
Benton	J. D. Bennett, Cole Camp
Boone	A. R. McComas, Sturgeon
Buchanan	A. R. Timmermann, St. Joseph
Buchanan	J. I. Byrne, St. Joseph
Buchanan	C. Wortley, St. Joseph
Butler	C. H. Porter, Poplar Bluff
Caldwell-Livingston	G. S. Dowell, Braymer
Caldwell-Livingston	D. M. Dowell, Chillicothe
Callaway	R. N. Crews, Fulton
Cape Girardeau	C. A. W. Zimmermann, Cape Girardeau
Carter-Shannon	T. W. Cotton, Van Buren
Cass	D. S. Long, Harrisonville
Chariton	J. W. Hardy, Sumner
Christian	R. R. Farthing, Ozark
Clay	W. H. Goodson, Liberty
Clinton	G. R. Peters, Cameron
Cole	James Stewart, Jefferson City
Cooper	A. C. H. van Ravenswaay, Boonville
Dent	F. E. Butler, Salem
Dunklin	Paul Baldwin, Kennett
Greene	F. T. H'Doubler, Springfield
Greene	W. S. Sewell, Springfield
Grundy-Daviess	E. J. Maiers, Trenton

Harrison..... W. A. Broyles, Bethany
Henry.....R. S. Hollingsworth, Clinton
Jackson.....J. Vardiman Bell, Kansas City
Jackson.....Marvin L. Bills, Kansas City
Jackson.....J. Paul Frick, Kansas City
Jackson.....Rex L. Divcley, Kansas City
Jackson.....Hugh L. Dwycr, Kansas City
Jackson.....B. Landis Elliott, Kansas City
Jackson.....Harold M. Roberts, Kansas City
Jackson.....Harold V. Zuber, Kansas City
Jackson.....Harry C. Lapp, Kansas City
Jackson.....John McLeod, Kansas City
Jackson.....C. Edgar Virden, Kansas City
Jackson.....Ralph R. Wilson, Kansas City
Jasper..... B. E. DeTar, Joplin
Jasper.....W. L. Post, Joplin
Johnson.....L. J. Schofield, Warrensburg
Lafayette.....C. T. Ryland, Lexington
Lawrence-Stone..... R. D. Cowan, Aurora
Lewis-Clark-
Scotland..... P. W. Jennings, Canton
Linn..... Edward F. Weir, Meadville
Marion-Ralls..... W. F. Francka, Hannibal
Mercer.....C. J. Laws, Princeton
Miller.....W. L. Allee, Eldon
Moniteau.....J. B. Norman, Tipton
Morgan..... J. L. Washburn, Versailles
Nodaway-Atchison-
Gentry-Worth..... C. D. Humberd, Barnard
Nodaway-Atchison-
Gentry-Worth..... H. C. Bauman, Fairfax
North Central—
Adair..... A. B. Cramb, Kirksville
Sullivan.....J. S. Montgomery, Milan
Pemiscot..... J. B. Luten, Caruthersville
Perry..... H. A. Tracy, Perryville
Pettis..... C. D. Osborne, Sedalia
Platte.....Spence Redman, Platte City
Randolph-Monroe..... M. E. Leusley, Moberly
Ray.....L. D. Greene, Richmond
St. Francois-Iron-
Madison-Washington-
Reynolds.....H. M. Roebber, Bonne Terre
St. Francois-Iron-
Madison-Washington-
Reynolds.....W. H. Barron, Fredericktown
St. Louis..... Otto Koch, St. Louis
St. Louis..... A. W. Westrup,
Webster Groves
St. Louis..... R. A. Walther, Overland
St. Louis..... P. R. Whitener, Overland
St. Louis City.....Clinton W. Lane, St. Louis
St. Louis City.....Robert Mueller, St. Louis
St. Louis City.....Joseph E. Glenn, St. Louis
St. Louis City.....Albert H. Hamel, St. Louis
St. Louis City.....Neil S. Moore, St. Louis
St. Louis City.....M. J. Pulliam, St. Louis
St. Louis City.....Robert E. Schlueter, St. Louis
St. Louis City.....John Green, St. Louis
St. Louis City.....L. D. Thompson, St. Louis
St. Louis City.....J. L. Mudd, St. Louis
St. Louis City.....E. Lee Dorsett, St. Louis
St. Louis City.....Philip S. Luedde, St. Louis
St. Louis City.....Victor E. Scherman, St. Louis
St. Louis City.....Andrew C. Henske, St. Louis
St. Louis City.....Roy P. Scholz, St. Louis
St. Louis City.....Marshall G. Seibel, St. Louis
St. Louis City.....Paul C. Schnoebelen, St. Louis
St. Louis City.....Frederick E. Woodruff,
St. Louis
Saline.....R. W. Kennedy, Marshall
South Central—
Howell.....C. F. Callihan, Willow Springs
Wright.....Homer G. Frame,
Mountain Grove
Vernon-Cedar..... C. B. Davis, Walker
Vernon-Cedar..... J. W. Dawson,
Eldorado Springs
Webster.....E. G. Beers, Seymour

On motion of Dr. Victor E. Scherman, St. Louis, the reading of the minutes of the previous meeting was dispensed with and they were adopted as printed in The Journal.

Dr. W. F. Francka, Hannibal, was elected Speaker of the House, and Dr. John Green, St. Louis, was elected Vice Speaker.

Dr. Harry L. Jones, Kansas City, Vice President, read the President's message and recommendations for Dr. Denny as follow:

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

It has been just twenty-five years since the Association convened with the principal problems facing the profession the same as they are today. The medical profession did its utmost to meet those problems in 1917 and 1918 as it is doing today and I believe doing better today, having profited by experience of the previous war. I have felt it an honor to serve as President of this Association which is meeting its obligations so gallantly and to work with the Councilors and other officers whose cooperation and support have facilitated so greatly the work of the Association during the year.

You have seen the reports of committees and know of the work that is being done.

One of the most important and immediate problems is the Procurement and Assignment Service. During the last war many communities were left destitute of medical care. We want to avoid that in this war. Many sections of our state were inadequately served previous to the outbreak of this war and the problem of maintaining civilian health and giving the armed forces the care to which they are entitled is an extremely difficult one. I ask each Councilor, each secretary of a Society and each member of this House of Delegates to assist with this work with judgment of all phases of the problems and with all fairness; and, I should add, with all promptness possible.

The Committee on Industrial Health has met and will increasingly meet more problems arising from the increased industrial activity.

The Committee on Control of Venereal Disease has been working in close touch with health authorities in protecting not only the men concentrated in army camps but workers concentrated in defense projects. I bespeak your earnest consideration of the resolution on prostitution presented in the report of that Committee and your encouragement to the Committee in its project on health in industrial plants.

Many physicians will be called upon to enlarge the scope of their practice and attend diseases which they have not been attending because of men entering the service from their communities. The proposal of the Committee on Postgraduate Course to increase the Councilor District clinic sessions on various subjects is an opportunity which should be taken advantage of by men who feel they could profit by this postgraduate work.

I recommend that the Board of Trustees of Group Hospital Service in Missouri and the participating hospitals be commended for the continued excellent service to the people of the state. The Committee on Medical Economics also reports that many component societies have followed the suggestions of that Committee in solving the question of military service funds. I hope this work will continue.

While our thoughts are predominantly on the problems of war, it is gratifying that much of the work of organized medicine looks to the future and is building for health at a future, better time. This is evident in the reports of the various committees.

The Committee on Scientific Work is to be highly commended for obtaining such an excellent and timely program.

This House of Delegates has a great responsibility in representing organized medicine in Missouri. More than ever, after having become better acquainted with its members during the last year, I have confidence in the wise deliberation and the actions of this body.

On motion, duly seconded, the message was received.

The Speaker appointed the following reference committees:

Reference Committee on Amendments to Constitution and By-Laws

R. E. Schlueter, St. Louis, Chairman.
C. A. W. Zimmermann, Cape Girardeau.
B. E. DeTar, Joplin.

Reference Committee on Resolutions

C. W. Lane, St. Louis, Chairman.
W. S. Sewell, Springfield.
Otto W. Koch, St. Louis.

Reference Committee on Miscellaneous Affairs

Ralph R. Wilson, Kansas City, Chairman.
Robert Mueller, St. Louis.
D. S. Long, Harrisonville.

Reference Committee on Medical Education and Public Welfare

Neil S. Moore, St. Louis, Chairman.
B. Landis Elliott, Kansas City.
G. V. Stryker, St. Louis.

Dr. Rex. L. Diveley, Kansas City, Chairman of the Local Committee on Arrangements, made announcements regarding entertainment during the Annual Session.

The report of the Executive Secretary follows:

EXECUTIVE SECRETARY'S REPORT

The principal activities of the Association are shown in the reports of committees and officers. The headquarters office has attempted to cooperate with officers and chairmen of committees and carry out their instructions during the year as well as serve the individual members in any way possible.

The office has been in close cooperation with the chairman of Procurement and Assignment Service in Missouri and has attempted to take care of some of the detail of that work. The aid of the Councilors in this work has been invaluable. Many of our members have been called into military service and more are going through the Procurement and Assignment Service.

In 1940 there was a gain in total membership of twelve; in 1941 there was a loss of one.

Status of Membership

Number of members, January 1, 1941		3,303
New Members	117	
Reinstated	7	124
Total		3,427
Dropped	47	
Deceased	56	
Transferred	22	125
Total January 1, 1942		3,302

Of this total 269 are Honor Members.

The Nominating Committee must submit nominations for the following offices:

Three Vice Presidents to fill the vacancies created by the expirations of the terms of Drs. Harry L. Jones, Kansas City; B. K. Stumberg, St. Charles, and Milton D. Overholser, Columbia. Two Delegates and corresponding Alternates to the American Medical Association must be nominated to fill the vacancies created by the expiration of the terms of Dr. A. R. McComas, Sturgeon, Alternate, Dr. E. Lee Miller, Kansas City, and Dr. H. L. Kerr, Crane, Alternate, Dr. A. S. Bristow, Princeton.

Honor members eligible for Affiliate Fellowship will be reported to the House of Delegates.

The terms (two years) of the Councilors of the odd numbered districts expire this year; viz., Drs. A. S. Bristow, Princeton, First District; Curtis H. Lohr, St. Louis, Third District; W. A. Bloom, Fayette, Fifth District; F. I. Wilson, Kansas City, Seventh District; Eldon C. Bohrer, West Plains, Ninth District. Delegates from these Districts are required by the Constitution to meet on the morning of the third day and elect the Councilor for their District. Since the General Meeting begins at 8:30 a. m., it is suggested that Delegates meet at 8:00 a. m. on Wednesday and elect their Councilor. The election must be certified to the House of Delegates on a prescribed form which will be furnished. Procedure of the election is outlined on page 21 of the Constitution and By-Laws as follows:

STANDING RULES (Adopted 1939.)

WHEREAS, Section 2, Article IX, of the Constitution provides "The delegates present from each councilor district shall meet on the morning of the third day of the Annual Session and elect the councilor from that district. In the event of death, resignation or removal of any councilor, the Council may appoint a successor to serve until the vacancy is filled at the next Annual Session. All of the officers shall serve until their successors are elected and installed," and

WHEREAS, A definite method of procedure should be outlined in order that all elections be held uniformly, therefore be it

Resolved, By the House of Delegates that the following procedure prevail:

At the close of the session on the first day the Secretary shall prepare lists of the delegates registered from the various councilor districts in which vacancies are to be filled, which shall be posted in the assembly hall and a copy given to the councilors whose terms expire.

The councilors in collaboration with the delegates shall determine upon the time and place of the meeting to be held on the morning of the third day of the Annual Session. The Secretary after being notified of such meeting shall cause a notice of the meeting to be posted in the assembly hall and make an announcement of the meeting in the House of Delegates or scientific assembly. The councilor shall act as temporary chairman of the meeting of the delegates from each respective councilor district. In the event a councilor is absent the President shall designate a delegate to perform these duties. The first order of business shall be to elect from among the delegates a permanent chairman and a secretary after which the councilor shall retire from this meeting. The chairman shall state the meeting is called for the purpose of electing a councilor to serve for a period of two years and that each candidate must reside or practice in the district. Nominations shall be received from the floor. The election shall be by secret ballot and a majority of the votes cast shall be necessary to elect. In case no nominees receive a majority on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast when he shall be declared elected. The election shall be certified to the House of Delegates by the chairman and secretary on a form to be prescribed.

If no election has been certified from a councilor district the incumbent shall serve until the next Annual Session.

In the event a delegate or his authorized alternate has not registered at the Session in time to be included on the list prepared and posted by the Secretary, he may attend the meeting on the morning of the third day of the Session and cast his vote for the election of a councilor, provided he has registered at the Session and his delegate's credentials bear the approval of the Committee on Credentials, and be it further

Resolved, That this resolution meets with the approval of the Council and is respectfully submitted to the House of Delegates at the 1939 Annual Session.

To the Secretary of the Missouri State Medical Association:
This is to certify that at a meeting of the delegates of the Councilor District held on at a. m. of, was duly elected Councilor for a period of two years in accordance with Section 2, Article IX, of the Constitution with the resolution adopted by the House of Delegates outlining the method of election. delegates were present.

....., Chairman
....., Secretary
....., Mo., Date.....

The President was called upon to appoint two members on the Committee on Scientific Work to fill the

unexpired terms of Dr. Franklin E. Walton, St. Louis, and Dr. Ralph R. Coffey, Kansas City, both called into military service. Drs. Nathan A. Womack, St. Louis, and Barnard C. Trowbridge, Kansas City, were appointed.

Much effort was expended in furthering bills in the Legislature advantageous to the health of the people of the state and in opposing other bills detrimental to the people's health. This work will be reported by the Committee on Public Policy.

The Association has continued in close touch with the work of the Farm Security Administration in regard to medical care of its clientele.

The Committee on Scientific Work has prepared an excellent program for the Session. The program was published in the April issue of The Journal. Also, informative scientific exhibits have been arranged by the committee. Thirty-five commercial firms have accepted our invitation to exhibit their products.

The Annual Banquet of the Association in honor of Past Presidents will be held on Monday evening, April 28, in the Ballroom of Hotel President. All members and their guests are invited to attend the banquet and the President's reception following.

E. H. Bartelsmeyer.

On motion, duly seconded, the report was accepted.

The report of the Treasurer, Dr. Ralph L. Thompson, St. Louis, follows:

REPORT OF THE TREASURER

Statement of Cash Receipts and Disbursements
January 1 to March 31, 1942

Particulars		Amount
Cash Balance December 31, 1941		$15,420.20
Receipts		
Members' Dues and Journal Subscriptions	$13,719.00	
Annual Season Exhibit Space	644.50	
Journal Subscriptions—Nonmembers	6.05	
Journal Advertising Space	1,910.88	
Total Receipts		16,280.43
Total Cash to Be Accounted for		$31,700.63
Disbursements		
Officer's Salary	$ 1,500.00	
Office Salaries	1,425.00	
Office Rent and Light	413.55	
Postage	191.75	
Stationery, Printing and Office Supplies	73.14	
Telephone and Telegraph	133.31	
Printing The Journal	1,903.38	
Express	17.43	
Insurance	65.73	
Meetings—$649.22		
Annual Session	52.60	
Woman's Auxiliary	60.90	
Committees and Conferences	206.82	
Councilors' Expenses	41.06	
Council Expenses	29.50	
Postgraduate Instruction	165.34	
American Medical Association (1941 Delegate)	93.00	
Traveling Expense	414.90	
General Expense	138.37	
Defense Malpractice Suit	300.00	
Furniture and Fixtures	166.88	
Dues Refunded	3.00	
Total Disbursements		7,395.66
Cash Balance March 31, 1942		$24,304.97

Represented by:

Mercantile-Commerce Bank and Trust Co.—Treasurer's Account	$23,916.58
Mercantile-Commerce National Bank—Secretary's Account	363.39
Petty Cash Fund	25.00
Total	$24,304.97

R. L. Thompson, Treasurer.

On motion, duly seconded, the report was referred to the Council.

The report of the Committee on Scientific Work, Dr. James E. Stowers, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work reports a splendid program for the Kansas City Session. The program was published in the April issue of The Journal. There will be a surgical and a medical pathologic conference Monday morning for members who are not in attendance at the House of Delegates. On Monday afternoon the General Meetings will begin and include fourteen out of state guest speakers, most of whom will present two addresses each. Also several members will present addresses. Round table luncheon meetings will be held on Tuesday and Wednesday. Col. George F. Lull, M. C., Chief of the Personnel Division of the United States Army Medical Corps, will speak at the Annual Banquet in honor of Past Presidents to be held Monday evening.

The Committee appreciates the cooperation of the officers and councilors in obtaining this program.

J. E. Stowers, Chairman,
Ralph A. Kinsella,
Nathan A. Womack,

On motion, duly seconded, the report was accepted.

The report of the Committee on Postgraduate Course, Dr. C. H. Neilson, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON POSTGRADUATE COURSE

The Committee on Postgraduate Course for several years has advocated one or two day clinic sessions in each Councilor District. This work was started this year and the Committee hopes to carry it further in the coming year. One day clinic sessions were held in four Councilor Districts during the last year: in the Eighth Councilor District at Mount Vernon, in the Sixth Councilor District at Nevada, in the Second Councilor District at Hannibal and in the Fourth Councilor District at St. Charles. Clinics were presented on several subjects at each meeting and a dinner meeting was held with an organizational subject or subject of vital interest to the profession presented at the dinner meeting. In two cases scientific sessions were held following the dinner meetings. Attendance ranged from sixty-five to one hundred twenty-five at these meetings. The Councilors made the arrangements for the meetings and chose the subjects of clinics to be presented. The Committee feels that this method of postgraduate instruction can be most valuable and hopes it may cooperate with the Councilors in furnishing programs for one or two such meetings in each Councilor District during the next year.

The Committee, at the invitation of the Postgraduate Committee of the Illinois State Medical Society, cooperated with that committee in an all-day clinic session at Belleville, Illinois, on April 9. Eleven Missouri physicians participated in the meeting with a like number from Illinois. A similar session will be planned to meet in Missouri to which Illinois physicians will be invited and will participate in the presentations.

The Committee on Postgraduate Course is less often called upon to furnish speakers for component society

meetings. The various committees of the Association are taking over more and more programs and furnishing speakers in their specific fields of endeavor. During the last year the Postgraduate Committee furnished forty speakers for twenty-seven meetings. Some of these have been furnished through other committees at the request of this Committee and every effort is made to send a speaker according to the desire of the society. It would be a great advantage to the Committee and to the office of the Association if all county societies would send in their programs with the number in attendance so that a summation might be made of the number of men who have availed themselves of the opportunity for advancement in their field of work. The Committee does not think that postgraduate work has been decreasing to any great extent and if more cooperation of the component societies could be attained, the results would be somewhat better.

The Committee appeals to the Councilors of the ten Councilor Districts to become interested in the question of a one or two day clinic with an evening meeting in some central locality in their district. This is the method which is carried out in many states and the Committee feels that this is quite an addition to postgraduate instruction.

C. H. NEILSON, Chairman,
M. PINSON NEAL,
G. T. BLOOMER,
REX L. DIVELEY,
GUY D. CALLAWAY.

DR. NEILSON, Chairman, reporting further, said: I am still interested in postgraduate work among physicians and have been for many years. The work carried on last year has been published and I wish you would read it, cogitate over it, think about it. The plan had in mind last year was to have one or two day clinics with speakers and papers and a meeting in the evening at which some topic pertinent to the times, either economic or military, would be presented. There were four such meetings in four Council Districts and I am told they were well worth while. But when I see the postgraduate work that is being done in other states, the amount of money being expended, the amount they have at their command for postgraduate work, I feel we are doing very little. Of course, I realize that the coming year is rather a bad one. Many of the members will be in the Army and their dues may be rescinded and income of the Association be lessened, and it takes money to do postgraduate work.

I would like to impress upon the Council that this Committee is perfectly willing to send men, to plan and arrange programs this coming year and every Councilor District should have one of these meetings. It is not necessary to do away with county society meetings. The Committee is willing also to send men to county meetings whenever you want them.

Postgraduate work is interesting, but the worst part of all is the apathy on the part of physicians. I go to these meetings and I see the same faces year after year; at the county meetings one sees the same people and the people the Committee would like to reach, the people who need instruction, do not come. This is the great question. If Missouri had a plan like they have at the University of Minnesota, it would be easy enough; or if Missouri had a scheme like they have in Illinois, in Michigan, in Iowa and in Wisconsin and other states where the postgraduate work is tied up with the university. Those states have full time men who go over the state and speak and do work which is a credit to them. I have had some dreams of that, that we might tie this up in some way with the state university, that we might have a man at the state university who would take this over. I am not sure that this is the best plan, but if we had a full complement of physicians, it would be easy to do. Gentlemen, we all need freshening up, I do not care who we are. The great trouble in being a physician is to keep up with the procession, keep up with all the new knowledge; and that is what we are trying to do. I would like to stimulate a little more interest in this. The Committee cannot do it all.

I want to congratulate those Councilors who had programs during the last year and urge the other Councilors to try it this coming year.

On motion, duly seconded, the report was accepted.

The report of the Committee on Publication, Dr. Walter Baumgarten, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLICATION

January 1, 1941, to January 1, 1942

The 38th Volume of THE JOURNAL was completed with the December issue. During 1941 there were published in THE JOURNAL seventy-eight original articles, five special articles, thirty-nine editorials, one hundred twenty-six news items, thirty-four obituaries, fifty-three society proceedings, seven Woman's Auxiliary reports, fifteen miscellaneous articles, two correspondence, fifty-six book reviews, twenty reviews of books for leisure moments, twenty-eight commercial announcements, six organization activity articles and two articles from the State Board of Health. There were 434 pages of reading material and 382 advertising pages. One hundred and two books were received for review in THE JOURNAL and were distributed to medical libraries in the state.

Advertising in THE JOURNAL from January 1, 1941, to January 1, 1942, earned $9,366.80 with $1,017.91 to be collected, totaling $10,384.71. Subscriptions of nonmembers amounted to $34.10, making $10,418.81 actually earned by THE JOUBNAL. The cost of production of THE JOURNAL (printing and illustrations) was $6,768.11.

The Committee wishes to express its appreciation of the untiring attention and courtesy of Mr. E. H. Bartelsmeyer, the Executive Secretary, and Miss Helen Penn, the Assistant Editor, as well as all assistants in the Executive Office.

WALTER BAUMGARTEN, Chairman,
RICHARD B. SCHUTZ,
M. H. SHELBY,
R. C. HAYNES.

On motion, duly seconded, the report was accepted.

The report of the Committee on Defense, Dr. C. E. Hyndman, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON DEFENSE

April 1, 1941, to April 1, 1942

Status of Cases

Cases pending March 1, 1941	7
Threats pending March 1, 1941	0
New cases (March 1, 1941, to April 1, 1942)	4
New threats (March 1, 1941, to April 1, 1942)	0
Cases settled during the year	6
Threats dropped during year	0
Cases pending April 1, 1942	5
Threats pending April 1, 1942	0

The disposition of the six cases settled during the year was: two suits dismissed, one adjusted out of court, one settled for the plaintiff by the Medical Protective Co., and one case which went to the supreme court resulted in decision for the defendant, and one instructed verdict for the defendant. The Association paid $300 toward expense in the case which was taken to the supreme court.

C. E. HYNDMAN, Chairman,
O. B. ZEINERT,
L. P. FORGRAVE,
M. L. KLINEFELTER,
M. J. OWENS.

On motion, duly seconded, the report was accepted.

The report of the Committee on Cancer, Dr. D. A. Robnett, Columbia, Chairman, follows:

REPORT OF THE COMMITTEE ON CANCER

The Committee on Cancer has cooperated with the American Society for the Control of Cancer and the Cancer Commission during the last year.

Lay education has been carried out through the American Society for the Control of Cancer.

The Committee has furnished speakers through the Postgraduate Committee to societies wishing cancer programs. On the whole, there have been few calls for speakers and the interest in the cancer program and cancer education has decreased in the last few years.

Dudley A. Robnett, Chairman,
E. Kip Robinson,
William E. Leighton,
F. G. Thompson,
Edwin C. Ernst.

On motion, duly seconded, the report was accepted.

The report of the Committee on Medical Economics, Dr. Carl F. Vohs, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

The Committee on Medical Economics has further developed the program adopted by the Missouri State Medical Association during the last few years. Problems coming before the Committee from Group Hospital Service, the Farm Security Administration and the osteopathic situation have been considered and recommendations have been made to the Council on these matters. Prepayment medical plans, the proposed Health Security Administration of the State of Missouri, the Workmen's Compensation Act, Basic Science Law and the Medical Lien Law have been studied for future action.

A careful study of conditions in Southeast Missouri has been made and the Committee, working with the Farm Security Administration, has secured an allotment of $250,000.00 to set up an all coverage plan for the clients in that area. In addition, funds have been secured to erect a new hospital in that district to complete the program. It is hoped that in due time, if this experiment is successful, to duplicate it in other sections of the state.

The Committee again wishes to call attention to the fact that the state has been divided into five districts, based upon Councilor divisions. The following is the assignment of Councilor Districts: Dr. Ira H. Lockwood, Kansas City, Councilor Districts 7 and 8; Dr. E. L. Johnston, Concordia, Councilor Districts 1 and 6; Dr. W. F. Francka, Hannibal, Councilor Districts 2 and 5; Dr. Carl F. Vohs, St. Louis, Council Districts 3 and 4; Dr. C. A. W. Zimmermann, Cape Girardeau, Councilor Districts 9 and 10.

The Committee is very anxious to have members report their problems and progress to these members so that the Committee may be of greater help. Invite the Committee member to meetings to discuss all economic questions.

Military Service Funds

Many county medical societies have followed the suggestions of the Committee made last year and have solved this problem to the satisfaction of their members. Most of the solutions offered have been on an individual basis, i. e., the physician leaving makes arrangements with the physicians remaining.

Hospital Service Plans

In sponsoring Group Hospital Service of St. Louis in May of 1936, the Missouri State Medical Association emphasized the responsibility of establishing it on a state-wide basis and guided it in such a way that it would prove to be in the best interest of the patient, hospital and profession. This has been done and it is a pleasure to report on six years of splendid progress. Group Hospital Service in Kansas City, which serves Jackson County, has had equal success. Missouri is indeed fortunate to have two such fine organizations working so closely with each other. The public and all others concerned with the service plans cannot possibly appreciate some of the troubles that have beset other states and communities where there has not been complete cooperation. The Committee commends the trustees of the Kansas City and St. Louis Blue Cross Plans for their adherence to the fundamental principles upon which the two organizations were brought into being.

The Committee reiterates the hope and the suggestion that the trustees of Group Hospital Service in Kansas City and St. Louis make every effort to reach more of the limited and static income wage earners. The Committee is cognizant of the many problems that may present themselves in reaching this very desirable objective but is confident that the medical profession and hospitals are just as firm as always in expending every effort so as to make unnecessary any form of compulsion in the matter of health programs. Both of the service plans have received each year the Seal of Approval of the American Hospital Association and each met in a greater degree than was required of them the standards set forward by the commission of hospital service and the American Hospital Association.

St. Louis: The St. Louis Blue Cross Plan will be six years old May 21, 1942. It now protects 220,000 persons in the metropolitan city. An additional 25,000 members belonging to Group Hospital Service are residents in smaller communities throughout the service area. With approximately 245,000 members, the St. Louis plan is the seventh largest of the seventy-one approved plans. Since the last report, several additional benefits have been added without increasing the cost and now that expense of hospital care is increasing, their inclusive rate of payment to the hospitals is a distinct advantage to the patient when compared with case reimbursement. The reserve of approximately $600,000 established during the first six years of operation is among the highest in the country and is quite adequate to meet any contingency which might arise. The St. Louis plan has had its greatest growth during the last three years and the sixty-five member hospitals have received a total of approximately $2,225,000.00 for care of members. The service plan is still receiving splendid cooperation from the Missouri Farm Bureau Federation and about 25,000 families belong to this particular group.

Kansas City: The Kansas City Blue Cross Plan was established July 1938 and now protects approximately 75,000 persons in Jackson County. Approximately 250 farm families belong to the Kansas City plan; they reside in Jackson and Clay counties. The eleven participating hospitals of the Kansas City plan have received payment in the amount of approximately $810,000.00 for care of members. While the utilization of the Kansas City plan is averaging a little more than the St. Louis plan, there does not appear to be any great variance in the manner of operation. It may well be that the enrollment of smaller groups and other local factors will account for the utilization in the Kansas City area. The report from the office of Group Hospital Service of Kansas City indicates that more money has been paid out for their farm members than has been received. It can be observed that they have not been members for a sufficient length of time to absorb the cost of elective surgery and medical care. The experience on local members in the two plans is satisfactory but is averaging a little higher than industrial groups. Both the Kansas City and St. Louis Blue Cross Plans have taken the lead in experimentation in the establishment of ways and means in serving the agricultural and allied groups.

The Committee wishes to remind the profession that the two service plans still merit the guarantee of serv-

ice between participating hospitals and that their profession is served adequately on the executive boards. Recent studies show the average per diem income to Kansas City hospitals to be $6.91 and the St. Louis hospitals are receiving $7.32 per diem.

Being fortunate to have the cooperation of practically all hospitals, the Committee believes that the State Association should reaffirm its support of this voluntary movement and seek to cooperate in every way possible with the hospitals.

The Committee urges the trustees of all the hospitals to give extensive consideration to postwar needs and the responsibility that will be placed upon the profession and the hospitals in making available a low cost voluntary plan to meet more of the health requirements of factory workers and the farmer.

Experience, based upon accrued statistics, remains about the same as in past years. It, however, is the consensus of opinion that certain warnings must be heeded.

Original rates were based on an estimate that the maximum hospitalization which would be required would be one day per member per year. The following has been the experience of Group Hospital Service to date:

Year	1 Patient Days Per Member Year	2 Average Stay	3 Admissions Per Member Year
1936	56% of a day	8.43 days	1 member out of 15
1937	86% of a day	9.62 days	1 member out of 11
1938	85% of a day	8.94 days	1 member out of 10
1939	93% of a day	8.93 days	1 member out of 9
1940	97% of a day	8.76 days	1 member out of 8
1941	91% of a day	8.99 days	1 member out of 10

By this data it will be noted that patient days per member have been slightly reduced in 1941 (column 1) and that hospital stay has been slightly increased on the average (column 2), the ratio of admissions has been improved and it is now back to one out of ten. The conclusion to be drawn may be based upon, first, shortage of beds in the hospitals and, second, a stricter admission policy. With an apparent shortage of beds it is difficult to reconcile the increase in stay. It would seem that physicians should urge their patients to leave the hospital as soon as possible to make room for others.

It was observed that especially during the busy season, hospital beds were very scarce; hospitals are rapidly reaching their capacity. It was felt that the need for other than hospital beds for acute cases was fairly well established; that convalescent and chronic invalid homes should be developed in conjunction with present institutions. In this way more hospitalization could be achieved without raising the total cost of medical care too much. It was suggested that the Committee work through the county medical societies and civic and state organizations to analyze and establish this need.

The Chairman of the Committee on Medical Economics emphasized the fact that this study was a voluntary action on their part and had not been requested by the Trustees of Group Hospital Service. The Missouri State Medical Association's interest in Group Hospital Service is equal, if not paramount, to all other interests and it is incumbent upon the Committee charged with the duty of supervising its program to make certain that it will continue to serve the community as it is now doing. The experience as stated indicates that the doctors can take immediate steps to alleviate crowded conditions and any possible abuses to this civic plan.

The Farm Security Administration's "pooling system" program is now working successfully in fifty-nine counties. Six counties have dropped out of the plan since the last report. The Committee would like to have reports from all counties in the program. If the Committee does not receive reports, it can make no suggestions for change or improvement. Write your representative on the Committee immediately and let him know your experiences.

As next year is to be a legislative year, the Committee recommends the introduction of the following bills in the State Legislature: 1. Basic Science Law. 2. Medical Lien Law. 3. Revision of the Workmen's Compensation Act.

The Committee also recommends: 1. To study and develop a medical service plan under the control of the State Medical Association. 2. To develop the Health Security Administration of Missouri. 3. The appointment of a special committee to study and recommend the types of hospitals to be built in the state in the future.

CARL F. VOHS, Chairman,
W. F. FRANCKA,
IRA H. LOCKWOOD,
E. L. JOHNSTON,
C. A. W. ZIMMERMANN.

On motion, duly seconded, the report was accepted.

Dr. B. Landis Elliott, Kansas City, Chairman of the Committee on Mental Health, reported as follows:

REPORT OF THE COMMITTEE ON MENTAL HEALTH

Based upon a survey of the state hospitals of Missouri made by the Mental Hospital Survey Committee in 1939, the Missouri Association for Mental Hygiene made some proposals for improvements in the laws of Missouri relating to the care and treatment of the mentally ill, and these proposals were approved by this Committee and presented to the meeting of the Missouri State Medical Association in St. Louis in 1941. Since no concerted move was made to have any of these proposals enacted into law, the end of the last session of the legislature left the laws unchanged.

The Committee's interest in these matters remained alive, however, and last December the Council of the Missouri State Medical Association made an appropriation to defray the cost of a preliminary study of the entire code of Missouri laws relating to the care and treatment of the mentally ill, and this study is now going on with the aid of legal counsel.

There are several matters along this line which the Committee feels should receive attention in the state, and to which it is giving thought.

1. Just as the state has a highway department and a separate school system, some states have a department of mental health. Such a department could exercise control of the state hospitals, and might include control of prisons.

2. Frequently in the incipient stage of a mental illness the patient possesses remarkable insight and is willing to undergo treatment which if postponed may have a much less satisfactory outcome. A provision for voluntary commitment therefore should be made.

3. Provision should be made for psychiatric service for the courts, particularly the circuit courts (such as is now provided for the Federal courts), and a mental examination of certain types of criminals should be obligatory.

4. A verdict of "not guilty by reason of insanity" should automatically bring about the commitment of the defendant to a mental hospital for an indeterminate period.

5. There is a group of habitual offenders, recidivists, psychopaths and the like, not easily classifiable as sane or insane, but who continue on the path of delinquency in spite of any treatment given, and quite undeterred by punishment. An institution intermediate between the state hospital and the penitentiary might well be established for their indefinite care.

6. Provision should be made in the budget of the state hospitals for an ample number of physicians for the patients cared for. There should be no arbitrary limit.

7. There should be strict enforcement of laws stipulating that the state hospitals are primarily for the care of the indigent.

There are some other matters along this line which are receiving attention, but more about them at some future time.

During the last few months this Committee has been cooperating with the Missouri Association for Mental Hygiene in a program of aid to the State Selective Service system. It has been trying to provide the Selective Service System with more comprehensive and complete neuropsychiatric histories of men called up for induction into the U. S. Army. This program of assistance to the war effort will be continued.

B. Landis Elliott, Chairman,
Ralf Hanks,
Frank M. Grogan,
E. F. Hoctor,
R. P. C. Wilson.

On motion, duly seconded, the report was accepted.

The report of the Committee on Maternal Welfare and Infant Care, Dr. W. H. Breuer, St. James, Chairman, follows:

REPORT OF THE COMMITTEE ON MATERNAL WELFARE AND INFANT CARE

The Committee will hold its annual meeting as a luncheon meeting on Monday, April 27, at 12:00 noon, in Hotel President. Reports of cases will be presented and Dr. Willard R. Cooke, Galveston, Texas, will discuss these reports. Dr. Cooke is Professor of Obstetrics and Gynecology of the University of Texas Faculty of Medicine. Members are invited to attend the meeting Monday noon. Dr. Cooke will address the General Meeting in the afternoon.

W. H. Breuer, Chairman,
Joseph D. James,
E. Lee Dorsett,
John Aull,
Ralph R. Wilson.

On motion, duly seconded, the report was accepted.

Dr. Frank G. Nifong, Columbia, member of the Committee on Health and Public Instruction (McAlester Foundation), reported as follows:

REPORT OF THE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION (McALESTER FOUNDATION)

I regret that the Committee has no formal report to make. Dr. E. Lee Miller, Kansas City, Chairman, is ill and the Committee has not functioned during the last year. It might be well to call to your recollection the function and desirability of this Committee. It should be called the McAlester Foundation Committee for Public Instruction to Lay People. The Postgraduate Committee has cooperated admirably and has furnished speakers for supplementary audiences of lay people in localities in which they were instructing physicians. This worked well in many places. Dr. Miller was enthusiastic and gave much time to that work. The difficulties of this Committee are similar to those of the Postgraduate Committee, the lack of money. It is desired that this Committee remain in existence and perform its functions in the future. The idea is simply that we want to impart knowledge to the lay people so they may cooperate with the medical profession and render its services more efficient. We also want the basic sciences taught in the schools. Anatomy and physiology have been deleted from the curriculum for some time.

On motion, duly seconded, the report was accepted.

The report of the Committee on Fractures, Dr. Frank D. Dickson, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON FRACTURES

The Committee on Fractures will have an exhibit at the Kansas City Annual Session at which the treatment of simple fractures will be demonstrated.

Frank D. Dickson, Chairman,
William J. Stewart,
M. L. Klinefelter,
O. P. Hampton,
James D. Horton.

On motion, duly seconded, the report was accepted.

The report of the Committee on Conservation of Eyesight, Dr. Winfred L. Post, Joplin, Chairman, follows:

REPORT OF COMMITTEE ON CONSERVATION OF EYESIGHT

In professional educational work the activity of the Committee has consisted of six papers, ten articles and one exhibit which was shown at meetings of the Kansas City Southwest Clinical Society, the Southern Medical Association, the National Society for the Prevention of Blindness and will be shown at the Kansas City Session of the Missouri State Medical Association.

Lay educational work has consisted of five lectures, some with the showing of motion picture films, the distribution of 5,000 pamphlets and an exhibit at the Missouri State Fair.

Much effort was put forth by the Committee in furthering the Anti-Fireworks Bill in the last legislature.

Winfred L. Post, Chairman,
Philip S. Luedde,
Robert S. Minton,
John McLeod,
C. P. Dyer.

Dr. John Green, St. Louis: I wish to commend this piece of work most thoroughly, especially the exhibit which is in the Scientific Exhibit at this Session. It stresses glaucoma and a five minute observation of that exhibit will be highly instructive to every member of this Association, whether he is an oculist or not. I hope the delegates will all look at this extremely valuable exhibit of one of the most ravaging and fatal diseases of the eye.

Dr. Winfred L. Post, Joplin: I want to give the credit for the exhibit to Dr. John McLeod, Kansas City.

On motion, duly seconded, the report was accepted.

The report of the Committee on Control of Venereal Disease, Dr. G. V. Stryker, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON CONTROL OF VENEREAL DISEASE

The Committee on Control of Venereal Disease held a joint meeting with representatives of the United States Public Health Service, the Venereal Disease Division of the State Board of Health and the Venereal Disease Division of the St. Louis Health Department on February 14 at the University Club, St. Louis, at 3:30 p. m. Those present were Drs. G. V. Stryker, St. Louis, chairman; W. S. Sewell, Springfield; V. Rogers Deakin, St. Louis; C. T. Ryland, Lexington; J. P. Henderson, Kansas City, members of the Committee; L. E. Burney, Kansas City, Past Assistant Surgeon, United States Public Health Service; John Williams and W. H. Aufrance, Jefferson City, State Board of Health; E. B. Johnwick, Venereal Disease Control Officer of the State, and F. G. Gillick, St. Louis, St. Louis City Health Department.

Dr. Stryker reviewed the purposes of the committee as "to review the available information on the venereal disease problem, assemble additional information covering the nature and extent of the facilities which now

exist for the diagnosis, recommend such supplemental and new state or local facilities and measures as seem desirable in dealing with these infections and to cooperate fully with the State Board of Health and the United States Public Health Service in carrying out such venereal disease programs as have been or may in the future be established."

Drs. Johnwick and Williams reviewed the present status of health units explaining that there are now nine district health units comprising from six to sixteen counties and thirteen separate county health units with a fourteenth to be established March 1. It was pointed out that in all health units under the direction of the State Board of Health, regular M.D.'s rather than osteopaths are the health officers. Each health unit has at least one medical officer, one nurse, a public health engineer and a county nurse. It was pointed out that while venereal disease control is only one of the problems of the health unit, each unit has at least one clinic in which free treatment for venereal disease is given. The health officer gives the patient a slip which is to be signed by a physician stating that the patient is indigent. In some units a private physician is delegated to give treatments and is paid by the State Board of Health.

Dr. Johnwick discussed the incidence of venereal disease in Missouri and gave figures based on the first million selective service draftees. Missouri showed an incidence of 3.67 per cent as compared to 4.52 for the United States, 10.3 for Arkansas, 1.3 for Iowa, 2.7 for Kansas, .8 for Minnesita and 5.36 for Oklahoma. Twenty-three counties in Missouri had no incidence among draftees. Dr. Johnwick pointed out that in districts where the population had a large Negro proportion, the percentage was larger, this being true of sections of the United States, states and counties in states.

Dr. Johnwick explained the procedure attempted in getting draftees with venereal disease under treatment. The draftee is placed in class 1B and referred back to his home. A report is submitted to the State Board of Health and the county health officer is notified. Attempt is made by the county health officer to get the draftee in the care of his private physician or the county clinic if the draftee is indigent. However, because home addresses are given in most cases and the draftee employed elsewhere, often in another state, it has been difficult to carry out this procedure.

Education of physicians in regard to venereal disease diagnosis and treatment was discussed. Continuance of enclosing leaflets with drugs going to physicians was discussed and the proposal of the Board of Health to subscribe to *Venereal Disease Information* for each physician reporting cases to the Board was approved. Upon motion of Dr. Ryland, seconded by Dr. Henderson, the continuation of distribution of educational material to physicians was approved, the practical method being left to the Board. Dr. Johnwick said that a three reel sound film on diagnosis and treatment of syphilis would soon be available to medical groups. Information to the public is carried out through posters, instruction by health officers and films which are shown at meetings, usually arranged by a county nurse.

The system of reporting and the distribution of drugs which the Committee formerly had approved was discussed.

Dr. Burney stated that the Committee on Venereal Disease Control in Missouri was the only state association committee that cooperated closely with the United States and state health departments in his district.

Qualifications of laboratories and technicians was discussed.

The question of sufficient medical training in venereal disease in medical schools was discussed and it was felt that many schools did not give sufficient training. Upon motion of Dr. Deakin, seconded by Dr. Ryland, the Committee voted to express its feeling to the Association that the present graduates of medical schools were not sufficiently trained in the diagnosis and treatment of venereal disease and that medical schools should be encouraged to devote more teaching time to the subject.

The question of control in districts of concentration of people through war or defense activities was discussed at length. Dr. Williams reported that health units have been established in all except one such area and that a unit will soon be established in that area.

A tentative plan for control of venereal disease in large industrial plants was discussed and is to be resubmitted to the Committee.

The following resolution was adopted by the Committee for presentation to the House of Delegates with the recommendation that the House of Delegates adopt it:

WHEREAS, There is evidence to indicate that commercialized prostitution exists in accessible distance of military establishments of the United States with alleged official reliance upon "regulation" of houses of prostitution, including the medical examination of prostitutes, as an aid in preventing the spread of venereal disease, and

WHEREAS, This method has been proven many times in the past not only valueless but conducive to a false sense of security on the part of the public, thereby leading to increased exposure and increased venereal disease, and

WHEREAS, Despite modern advances in diagnostic methods a like result is as inevitable now as in the past, since a medical certificate of freedom from evidence of infection issued to a prostitute can apply only to the moment at which the examination was made and can give no assurance whatever of freedom from infection immediately thereafter, and

WHEREAS, The State Board of Health of Missouri has at considerable public expense conducted a program for the prevention and reduction of venereal disease and is continuously increasing its efforts in this direction, and

WHEREAS, The Missouri State Medical Association has a proper concern for the health of the men of the armed forces who are being trained in the many military establishments of Missouri as well as the health of the civilian residents of the State, and

WHEREAS, In the opinion of the Missouri State Medical Association, so-called "regulated" prostitution, which includes the medical examination of prostitutes and the segregation of districts for the purpose of prostitution, is as dangerous now as it has been in the past and will, wherever practiced, lead to increased exposure and increased incidence of venereal disease infection; therefore be it

Resolved, That the Missouri State Medical Association go on record as emphatically condemning all periodic medical "examinations" of prostitutes to the extent of dropping from its membership rolls any member who participates in this fashion in the illegal activities of prostitutes, and be it further,

Resolved, That, in view of the national interest involved, there should be a clearly stated policy established by the Chief Executive of the State of Missouri directing all state and local law enforcement agencies to suppress prostitution and the existence of any "segregated" red light districts in the state by the authority vested in them by Revised Statutes Missouri 1939, Sections 4394, 4395, 4397, 4398, 4401, 4402, 4403, 4681, 4682, 4683, 4690, 4691, and for cities of the first, second, third and fourth class, to pass or augment the force of such ordinances as authorized by Sections 6293, 6609, 6950, and 7169 to suppress prostitution, and to cooperate fully with military authorities in accomplishing this objective, and be it further,

Resolved, That the Secretary send a copy of these resolutions to the Governor of the State of Missouri and cause the resolutions to be published in THE JOURNAL of the Missouri State Medical Association.

G. V. STRYKER, Chairman,
W. S. SEWELL,
V. ROGERS DEAKIN,
C. T. RYLAND,
J. P. HENDERSON.

On motion, duly seconded, the report was referred to the Reference Committee on Resolutions.

The report of the Committee on Industrial Health, Dr. E. C. Funsch, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON INDUSTRIAL HEALTH

Considerable progress has been made in the attempt to eliminate industrial hazards in the State of Missouri. Industry with occupational hazards has been subjected to inspection by the engineers from the municipal, state and federal health authorities whose mission has been mostly educational in attempting to help the employer with his problems and in some few cases to insist on observing the standing regulations. Additional industrial engineers have been added to the three branches

of the government which has permitted a greater survey of the industrial field. Much new defense industry has come into the state and those that the Chairman of the Committee has had contact with have attempted to use all the modern protections against industrial hazards.

The Chairman of the Committee attended the Industrial Health Conference sponsored by the A.M.A. in Chicago, in January, 1942, has made several trips to Jefferson City, has had a number of meetings with the State Board of Health and has made inspection of several plants when so requested. No attempt has been made to make an organized survey of all the industries of the state because the Committee has neither the time nor personnel to do this. On the other hand, it would be a duplication of the work that is being done by the various governmental health organizations.

E. C. Funsch, Chairman,
H. I. Spector,
W. M. Kinney,
J. E. Castles,
R. G. Cooper.

On motion, duly seconded, the report was accepted.

The report of the Committee on Medical Preparedness of the American Medical Association and Committee on Medical Procurement and Assignment Service, Dr. Robert Mueller, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL PREPAREDNESS OF THE AMERICAN MEDICAL ASSOCIATION AND COMMITTEE ON MEDICAL PROCUREMENT AND ASSIGNMENT SERVICE

The Committee on Medical Preparedness has blended with and has been absorbed by the Committee on Procurement and Assignment Service.

On October 1, 1941, President Roosevelt, by executive order, created the Committee on Medical Procurement and Assignment Service. This Committee is using the material gathered by the Committee on Medical Preparedness and is organizing the entire State of Missouri.

The purpose of this Committee is to see that the medical services of the civilian population are not disrupted by the war emergency. It is the purpose of this Committee to see that civilian communities are given necessary medical care as well as to procure necessary medical personnel for the armed forces.

The Committee is concerned only with the essentiality of a physician; first, in his civilian community; second, in an industrial capacity, and, third, in a teaching capacity. It has nothing to do with the question of dependency.

The Committee wishes to thank the Councilors and the officers of the respective component medical societies and all others who have been so kind in cooperating in this work for the assistance they have given. Much assistance will be needed in the future. This service is rendered not alone to our country but to the medical profession as well. It is deeply appreciated.

Robert Mueller, State Chairman.

On motion of Dr. Robert E. Schlueter, St. Louis, seconded by Dr. John Green, St. Louis, the House of Delegates accepted the report and gave a vote of thanks to Dr. Robert Mueller for his work on the Procurement and Assignment Service.

Appointment of Committee on Nominations

The Speaker announced the appointment of the Committee on Nominations as follows:

J. F. Harrison, Mexico, Chairman.
J. I. Byrne, St. Joseph.
P. W. Jennings, Canton.
A. C. Henske, St. Louis.
A. W. Westrup, Webster Groves.
D. S. Long, Harrisonville.
B. Landis Elliott, Kansas City.
W. S. Sewell, Springfield.
F. E. Butler, Salem.
C. A. W. Zimmermann, Cape Girardeau.

On motion the House of Delegates recessed until 4:30 p. m.

Monday, April 28, 1942—Afternoon Session

The adjourned session of the House of Delegates convened at 4:30 p. m., Monday, April 27, with Dr. W. F. Francka, Hannibal, Speaker of the House, presiding.

Dr. John Green, St. Louis, Vice Speaker, took the chair.

Dr. W. F. Francka, Hannibal: I understand it is a prerogative of the Speaker of the House to make a speech at any time he chooses. This morning when you elected me Speaker of the House of Delegates, you bestowed upon me a singular honor for which I am duly and properly appreciative. Ever since, however, I have been thinking about the right and wrong of the procedure. I presume that the present way of electing the Speaker of the House of Delegates is the most democratic way of doing it but, personally, just having had the problem of deal with, I am convinced that it is most inefficient and that it does not add to the well-being of the Association. One comes to the meeting and without warning is elected Speaker. If most members are as I am, they do not know anything about the routine except the agenda that is handed them or as they have read in the program. However, in the next half hour, while trying to conduct the meeting, the Speaker is supposed to appoint five committees, committees that are vital to the session. Do you think it can be done intelligently and efficiently without any forethought? It is asking a lot of the individual who is elected Speaker. I think one of two things should be done. Either amend the By-Laws so that it will be possible to elect the Speaker one year in advance or so that the President shall preside at the first meeting of the House of Delegates.

This address was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

The report of the Council, Dr. Curtis H. Lohr, St. Louis, Chairman, follows:

REPORT OF THE COUNCIL

The Council of the Missouri State Medical Association met December 21, 1941, at the Coronado Hotel, St. Louis. Dr. Curtis H. Lohr, St. Louis, Chairman, presided. In attendance were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Charles E. Fallet, DeSoto; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; F. I. Wilson, Kansas City; W. Wallis Smith, Springfield; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston, and Curtis H. Lohr, St. Louis, Councilors; R. B. Denny, Creve Coeur, President; H. L. Kerr, Crane, President-Elect; E. H. Bartelsmeyer, St. Louis, Executive Secretary; R. L. Thompson, St. Louis, Treasurer; James Stewart, Jefferson City, Secretary, State Board of Health; Col. W. L. Gist, Medical Corps, State Medical Adviser, Selective Service System; Robert Mueller, St. Louis, State Chairman, Committee on Medical Preparedness; E. G. McGavran, Clayton, St. Louis County Health Commissioner; Carl F. Vohs, St. Louis, Chairman of the Executive Committee of the Social Planning Council on Health and Hospitals for Civilian Defense in St. Louis; B. Landis Elliott, Kansas City, Chairman, Committee on Mental Health; Robert E. Schlueter, St. Louis; J. C. Peden, St. Louis, and E. R. Brown, University City.

The minutes of the meeting of the Council on April 29, 1941, were approved as published in The Journal, July, 1941.

The President, Dr. R. B. Denny, Creve Coeur, and the President-Elect, Dr. H. L. Kerr, Crane, addressed the Council briefly.

The Chairman appointed Drs. W. A. Bloom, Fayette, H. B. Goodrich, Hannibal, and A. S. Bristow, Princeton, as the Committee on Appropriations.

The report of the Treasurer was received and referred to the Committee on Appropriations as follows:

Status of Funds

Treasurer's Account	$14,360.67
Secretary's Account	455.12
Cash on Hand	14.12
Total	$14,830.04

R. L. Thompson, Treasurer.

Dr. Robert E. Schlueter, St. Louis, Chairman, reported for the committee appointed by the President to select and have erected a tablet in memory of Dr. E. J. Goodwin.

Dr. F. I. Wilson, Kansas City, reported for the General Committee on Arrangements for the 1942 Kansas City Session.

Dr. Robert Mueller, St. Louis, discussed work of the Committee on Medical Preparedness and asked assistance of Councilors in the work of the Medical Procurement and Assignment Service. This was discussed by Drs. E. R. Brown, J. C. Peden and B. Landis Elliott.

Col. W. L. Gist, Jefferson City, discussed military-medical conditions in Missouri and work of the National Research Council.

Dr. B. Landis Elliott, Kansas City, Chairman of the Committee on Mental Health, asked endorsement of the Council for cooperation with the Missouri State Association for Mental Hygiene; he requested an appropriation of $250.00 to enable the Committee to survey the state laws on mental health. The appropriation was allowed.

Dr. James Stewart, Jefferson City, reported on the work of the State Council on Defense.

Dr. Carl F. Vohs, St. Louis, reported on the work in St. Louis on Civilian Defense.

Following discussion of the medical phase of Civilian Defense, the Chairman appointed Drs. W. A. Bloom, F. I. Wilson and E. C. Bohrer as a committee to draw up resolutions expressing the attitude of the Council. The following resolution subject to the approval of the House of Delegates was adopted:

The Council of the Missouri State Medical Association, by resolution presents the following recommendations on the medical phase of Civilian Defense:

1. The entire program should be headed by the proper representation of organized medicine.

2. Cognizance should be given to the problem of ascertaining the availability of all beds in existing hospitals and their utilization.

3. The advice of medical authorities should be obtained in the development of additional beds and hospital space which might be required.

4. In order to facilitate the development of the above program, proper financing should be set up by local, state and Federal governments.

5. It is called to the attention of state and Federal governments that sufficient medical personnel is necessary to furnish an adequate Civilian Defense program.

We reaffirm that the attitude of organized medicine is to support the government in all its activities to bring to a successful conclusion its war activities in the development of its Civilian Defense program.

The report of the Committee on Fractures, submitted by Dr. W. J. Stewart, Columbia, member of the Committee, was approved.

The report of the Adviser to the Woman's Auxiliary, Dr. Herbert L. Mantz, Kansas City, was approved.

The report of the special committee on National Youth Administration, Dr. Herbert L. Mantz, Chairman, was approved.

The report of the Committee on Medical Economics, including discussion of the F. S. A., presented by Dr. Carl F. Vohs, St. Louis, was approved.

The Chairman read a letter from Dr. Walter Baumgarten, St. Louis, asking to be relieved of his duties as Secretary and Editor because of ill health. Upon motion the letter was deferred for action until conference with Dr. Baumgarten.

The Chairman read a letter from Dr. J. A. Stocker, Mount Vernon, recently appointed superintendent of the Missouri State Sanatorium, expressing his wish for cooperation with physicians of the state.

A letter from the secretary of the St. Louis Medical Society was referred to the Committee on Constituion and By-Laws. The letter in part was: "It is the opinion of the Council that some state action must be taken in order to clarify the situation and in order that men who may be delinquent, or in any other fashion not acceptable to their original county society, should not be accepted in any other component society."

On recommendation of the Committee on Appropriations the following budget for 1942 was approved:

Salaries (Office and JOURNAL)	$12,750.00
Printing of THE JOURNAL	7,200.00
Public Relations	2,000.00
Defense	1,000.00
Postage	1,100.000
Postgraduate Instruction	1,000.00
Printing and Stationery	700.00
Traveling Expense of Executive Secretary	1,100.00
Telephone and Telegraph	600.00
Rent of Office and Light	1,100.00
Meetings: Annual Session, Council and Councilors' Expenses, Committee Meetings and Conferences, Delegates to A. M. A.	5,000.00
General Expense and Miscellaneous	700.00
	$34,250.00

Meeting of April 12

The Council of the Missouri State Medical Association met April 12, 1942, at the Coronado Hotel, St. Louis. Dr. Curtis H. Lohr, St. Louis, Chairman, presided. Members of the Board of Directors of the Community Health League were guests of the Council. In attendance were Drs. H. B. Goodrich, Hannibal; Charles E. Fallet, DeSoto; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; F. I. Wilson, Kansas City; W. Wallis Smith, Springfield; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston, and Curtis H. Lohr, St. Louis, Councilors; R. M. James, Joplin; Joel W. Hardesty, Hannibal, and E. Lee Dorsett, St. Louis, members of the Board of Directors of the Community Health League; H. L. Kerr, Crane, President-Elect; R. L. Thompson, St. Louis, Treasurer; Morris B. Simpson, Kansas City, Chairman of the Committee on Public Policy.

The place of the osteopath in Missouri in wartime was discussed.

Upon motion it was decided to invite Col. W. W. Gist, Jefferson City, to attend the Monday noon meeting of the Council on April 27.

Upon motion it was decided to invite Dr. James Stewart, State Health Commissioner, and members of the State Board of Health to have dinner with the Council at an informal meeting on Sunday evening, April 26, preceding the Annual Session.

Various phases of civilian and military health problems were discussed.

Dr. W. A. Bloom reported that the county court of Callaway County had refused to appropriate funds for the Callaway County Hospital because the hospital did not allow osteopaths to practice in the hospital.

Dr. Lohr opened a discussion on the Procurement and Assignment Service and stressed especially the proposal to take all but first year interns from hospital service. The discussion was entered into by all Councilors present.

The proposal of the council of the Jackson County Medical Society to introduce a resolution in the House of Delegates recommending moving the headquarters of the Association to Jefferson City was discussed and the consensus of opinion was that it was better to consider no move at the present time.

Dr. Lohr presented greetings from Dr. R. B. Denny, President, who was unable to attend because of illness. The Council voted to send flowers to Dr. Denny with its wish for his rapid recovery.

Curtis H. Lohr, M.D., Chairman.

The minutes of the Council meeting of April 27, 1942, (page 226) were read.

On motion, duly seconded, the report was adopted.

Dr. C. W. Lane, St. Louis, read the report of the Reference Committee on Resolutions.

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

The Reference Committee on Resolutions unanimously approves the resolution contained in the report of the Committee on Control of Venereal Disease as follows:

Whereas, There is evidence to indicate that commercialized prostitution exists in accessible distance of military establishments of the United States with alleged official reliance upon "regulation" of houses of prostitution, including the medical examination of prostitutes, as an aid in preventing the spread of venereal disease, and

Whereas, This method has been proven many times in the past not only valueless but conducive to a false sense of security on the part of the public, thereby leading to increased exposure and increased venereal disease, and

Whereas, Despite modern advances in diagnostic methods a like result is as inevitable now as in the past, since a medical certificate of freedom from evidence of infection issued to a prostitute can apply only to the moment at which the examination was made and can give no assurance whatever of freedom from infection immediately thereafter, and

Whereas, The State Board of Health of Missouri has at considerable public expense conducted a program for the prevention and reduction of venereal disease and is continuously increasing its efforts in this direction, and

Whereas, The Missouri State Medical Association has a proper concern for the health of the men of the armed forces who are being trained in the many military establishments of Missouri as well as the health of the civilian residents of the State, and

Whereas, In the opinion of the Missouri State Medical Association, so-called "regulated" prostitution, which includes the medical examination of prostitutes and the segregation of districts for the purpose of prostitution, is as dangerous now as it has been in the past and will, wherever practiced, lead to increased exposure and increased incidence of venereal disease infection; therefore be it

Resolved, That the Missouri State Medical Association go on record as emphatically condemning all periodic medical "examinations" of prostitutes to the extent of dropping from its membership rolls any member who participates in this fashion in the illegal activities of prostitutes, and be it further,

Resolved, That, in view of the national interest involved, there should be a clearly stated policy established by the Chief Executive of the State of Missouri directing all state and local law enforcement agencies to suppress prostitution and the existence of any "segregated" red light districts in the state by the authority vested in them by Revised Statutes Missouri 1939, Sections 4394, 4395, 4397, 4398, 4401, 4402, 4403, 4681, 4682, 4683, 4690, 4691, and for cities of the first, second, third and fourth class, to pass or augment the force of such ordinances as authorized by Sections 6293, 6609, 6950, and 7169 to suppress prostitution, and to cooperate fully with military authorities in accomplishing this objective, and be it further,

Resolved, That the Secretary send a copy of these resolutions to the Governor of the State of Missouri and cause the resolutions to be published in The Journal of the Missouri State Medical Association.

On motion, duly seconded, the report was adopted.

Dr. Hugh L. Dwyer, Kansas City: I would like to offer the following resolution:

Whereas, The passage of the Social Security Act gave recognition to the public responsibility for the care of the crippled child and grants-in-aid have come from the Federal government to state agencies for the care of the crippled, and

Whereas, The United States Children's Bureau accepts the state's definition of "crippling" and in thirteen states programs for children with rheumatic heart diseases are in effect, "because such children are in every sense of the word 'crippled' in that this disease renders achievement unusually difficult for the victim and makes it necessary for him to have more care than the normal child" which often the parents cannot provide, and

Whereas, The Missouri Statute, Section 9649, R. S. Mo. 1939, is not broad enough to include crippling due to rheumatic heart disease according to an opinion from the Attorney General, and

Whereas, The State of Missouri cannot share in Federal subsidies for rheumatic heart disease as is done in an increasing number of other states, be it

Resolved, That the Missouri State Medical Association instruct its Committee on Public Policy to petition the Legislature to change the statute to include specifically rheumatic heart disease in defining "crippled" and make all children so afflicted eligible for hospitalization and treatment with Federal grants-in-aid.

On motion, duly seconded, the resolution was referred to the Reference Committee on Resolutions.

Dr. C. T. Ryland, Lexington: I have a resolution I would like to offer.

Whereas, Many members of the Missouri State Medical Association have been and will be called to the colors, and

Whereas, In many cases the dues of these members will be remitted by the county societies, and

Whereas, Such action by the county societies will result in similar action by the State Association concerning the dues of those members in the Missouri State Medical Association, and

Whereas, This will lead to a serious decrease in the income of the State Association which will jeopardize the scope of the Association's program and service, therefore be it

Resolved, That the dues of the Missouri State Medical Association be increased to $12.00 per year by amending Chapter VIII, Section 1, of the By-Laws by striking out the words "$8.00" in the first line of Section 1, and by replacing them with the words "$12.00," so that when amended Chapter VIII, Section 1, Dues and Asessments, shall read as follows:

Chapter VIII—Dues and Assessments

Section 1. The annual dues shall be $12.00 and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues with all the privileges of active membership in the Association. Dues shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to The Journal for one year. The secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and members. Any member whose name has not been reported for enrollment and whose dues have not been remitted to the Secretary of this Association on or before April 1 shall stand suspended until his name is properly reported and his dues for the current year are paid. (As amended 1928, 1934.)

On motion, duly seconded, the resolution was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Dr. F. E. Woodruff, St. Louis, invited the Association to meet in St. Louis in 1943. The invitation was unanimously accepted.

On motion, duly seconded, the House of Delegates adjourned.

Wednesday, April 29, 1942—Afternoon Session

The House of Delegates convened at 4:00 p. m., April 29, with the Speaker, Dr. W. F. Francka, Hannibal, presiding.

The Committee on Credentials reported a quorum present.

The minutes of the previous meetings, on motion, duly seconded, were approved.

Nomination for President-Elect

Dr. J. Vardeman Bell, Kansas City, nominated Dr. Andrew W. McAlester, Jr., Kansas City, for President-Elect.

On motion, duly seconded and carried, the Secretary was instructed to cast the unanimous ballot of the House of Delegates for Dr. Andrew W. McAlester, Jr., Kansas City, for President-Elect. The Secretary cast the unanimous ballot of the House for Dr. Andrew W. McAlester, Jr., as President-Elect of the Missouri State Medical Association for the ensuing year and the Speaker declared Dr. McAlester so elected.

Dr. McAlester was escorted to the platform by Drs. J. Vardeman Bell and Rex L. Diveley, Kansas City.

DR. ANDREW W. MCALESTER, JR., Kansas City: I appreciate this very much, especially since it started with the delegates at home. There is nothing better than the friendship of the men in your home Society. As you know, I have been reared in medicine and its traditions. I have no speech to make and I will not make any speeches unless they come from the right source of information. The only way we can stand is as a unit. We have some hard times ahead of us, in all probability. We do not know what may happen a year or two from now. But the only thing I am interested in is the welfare of the Association. I appreciate this honor and thank you.

REPORT OF THE COMMITTEE ON NOMINATIONS

For Vice Presidents: Dr. R. M. James, Joplin; Dr. E. J. Schisler, St. Louis; Dr. G. A. Lau, St. Joseph.

For Delegates to the American Medical Association: For Delegate, Dr. A. R. McComas, Sturgeon; alternate, Dr. J. E. Stowers, Kansas City. Delegate, Dr. W. L. Allee, Eldon; alternate, Dr. A. S. Bristow, Princeton.

On motion, duly seconded, these officers were declared elected.

The secretary reported the results of the election of Councilors as follow:

1st District.....Dr. A. S. Bristow, Princeton
3rd District.....Dr. Curtis H. Lohr, St. Louis
5th District.....Dr. W. A. Bloom, Fayette
7th District.....Dr. F. I. Wilson, Kansas City
9th District.....Dr. E. C. Bohrer, West Plains

Installation of Dr. H. L. Kerr

DR. H. L. KERR, Crane: It is quite an honor you have conferred upon me. I doubt seriously whether this will be an outstanding administration, but I promise I will spend as much time as is necessary on the job. The medical profession in general has been so kind to me that I feel I should take the whole year off and spend all my time in this work. I promise each Councilor that I shall visit his district during the year, formally or informally. It really has been enough honor to be allowed to associate with you the last forty years. I feel it a great honor, indeed, that you have elected me to many minor offices and finally to the highest office in the Association. All I can do is to promise to do my best to give you an administration you will approve.

Dr. H. L. Kerr, Crane, made the following appointments to committees:

Scientific Work: Harry C. Lapp, Kansas City, Chairman (to fill the unexpired term of Dr. J. E. Stowers, Kansas City, resigned); N. A. Womack, St. Louis; Dudley S. Conley, Columbia; Stanley P. Howard, Jefferson City; B. C. Trowbridge, Kansas City.

Postgraduate Course: C. H. Neilson, St. Louis, Chairman.

Public Policy: James Stewart, Jefferson City; R. M. James, Joplin; D. M. Dowell, Chillicothe.

Cancer: E. Kip Robinson, Kansas City.

Defense: C. E. Hyndman, St. Louis, Chairman.

Medical Education and Hospitals: L. W. Dean, St. Louis, Chairman; F. T. H'Doubler, Springfield.

Medical Economics: Ira H. Lockwood, Kansas City.

Mental Health: Ralf Hanks, Nevada.

Maternal Welfare and Infant Care: Ralph R. Wilson, Kansas City, Chairman; Joseph D. James, Springfield; Irl B. Krause, Jefferson City; W. Roger Moore, St. Joseph.

Health and Public Instruction (McAlester Foundation): D. A. Robnett, Columbia, Chairman; E. Lee Miller, Kansas City; A. J. Durant, Columbia.

Constitution and By-Laws: H. L. Mantz, Kansas City, Chairman.

Fractures: Wm. J. Stewart, Columbia; J. P. Murphy, St. Louis; F. G. Pipkin, Kansas City; D. L. Yancey, Springfield.

Conservation of Eyesight: Winfred L. Post, Joplin, Chairman; George A. Hornback, Hannibal; G. J. Tygett, Cape Girardeau; C. R. Bruner, Columbia; C. Souter Smith, Springfield.

Control of Venereal Disease: W. S. Sewell, Springfield.

Industrial Health: H. I. Spector, St. Louis; W. M. Kinney, Joplin.

Physical Therapy: F. L. Feierabend, Kansas City.

Study of Medical Practice Act: J. Milton Singleton, Kansas City, Chairman; Lee D. Cady, St. Louis; T. W. Cotton, Van Buren; E. D. James, Joplin; O. C. Gebhart, Oregon; M. Pinson Neal, Columbia; E. L. Spence, Kennett.

Medical Legal Affairs: C. T. Ryland, Lexington.

Tuberculosis: E. E. Glenn, Springfield, Chairman; George D. Kettelkamp, Koch; J. A. Stocker, Mount Vernon.

Rural Medicine: H. A. Lowe, Springfield, Chairman; T. W. Cotton, Van Buren; R. E. Breuer, Newburg.

Medical Military Affairs: H. B. Stauffer, Jefferson City, Chairman; Charles D. Osborne, Sedalia; D. D. Stofer, Kansas City; James E. Stowers, Kansas City; Theodore P. Brooks, St. Louis.

Study of Cardiac Disease: J. DeVoine Guyot, Jefferson City, Chairman; A. Graham Asher, Kansas City; Julius Jensen, St. Louis.

Adviser to Woman's Auxiliary: H. L. Mantz, Kansas City.

On motion, duly seconded, these appointments were approved.

Dr. R. E. Schlueter, St. Louis, Chairman, presented the report of the Reference Committee on Amendments to the Constitution and By-Laws.

REPORT OF THE REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The Reference Committee on Amendments to the Constitution and By-Laws has duly studied the two propositions which were submitted to it and begs to request that they be taken up and considered separately at this time.

The first was the address of the Speaker of the House of Delegates regarding the election of the Speaker of the House of Delegates. It is the opinion of the Committee that the suggestions contained in this address are very important and valuable and should be studied more carefully than is possible now. Therefore, the Committee recommends that it be referred to the Committee on Constitution and By-Laws, to be reported on at the next Annual Session.

Upon motion, duly seconded, the address of the Speaker of the House of Delegates was referred to the Committee on Constitution and By-Laws.

The second matter was the resolution to raise the dues of the Association from $8.00 to $12.00. It is the opinion of the Committee that it is now impossible to know the amount of decrease in income that will be suffered by the Association through the remittance of the dues of members who have entered the service of the government and that the necessity of increasing the dues, as well as the amount of such increase, should be decided when an approximate estimate of the loss is possible. Therefore, the Committee recommends that this matter also be referred to the Committee on Constitution and By-Laws.

Upon motion, duly seconded, this resolution was referred to the Committee on Constitution and By-Laws.

Dr. R. E. Schlueter, St. Louis, requested the unanimous consent of the House of Delegates to present a resolution, which was granted, and the following resolution was presented:

Resolved, That the Council of the Missouri State Medical Association be directed to remit the dues to the State Association of all men inducted into the armed forces of the United States for each year of war service following, but not including, the year of induction; provided that the component county society has taken similar action.

Upon motion, duly seconded, this resolution was adopted.

Dr. Curtis H. Lohr, St. Louis, requested the unanimous consent of the House of Delegates to present a resolution, which was granted, and the following resolution was presented:

Whereas, Surgeon General Magee, of the Army of the United States, has made a noteworthy contribution to the 85th Annual Session of the Missouri State Medical Association by assigning one of his staff officers to speak to the assembly on "The Medical Officer in Our Wartime Army," and

Whereas, The information presented is of the utmost importance to every member of the Missouri medical profession, and

Whereas, This timely and interesting subject was presented by Colonel Lull, M.C., Chief of the Personnel Division of the U. S. Army Medical Department, in a way which gave rise to much favorable comment, therefore be it

Resolved, That the impressive and distinguished manner in which Colonel Lull has fulfilled his assignment be officially commended and brought to the attention of the Surgeon General, and be it further

Resolved, That the Missouri State Medical Association express its grateful appreciation to Surgeon General Magee, of the Army of the United States, for his fine cooperation and willing efforts in behalf of the medical profession of the State of Missouri.

Upon motion, duly seconded, this resolution was adopted.

Dr. C. W. Lane, St. Louis, Chairman, presented the report of the Reference Committee on Resolutions.

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

This Committee had one matter brought before it, the resolution concerning the changing of the Missouri law to include children crippled due to rheumatic heart disease in Section 9649, R. S. Mo. 1939. The Committee has considered carefully this proposal and feels that if this resolution is adopted it possibly would endanger the law already in effect because it does state definitely in the law that it is the care of the "crippled" child, and if this is included every chronic disease in every specialty could be included in this category. The Committee, therefore, recommends that this resolution be not adopted.

Following discussion as to whether attempt to change the law would endanger the present law by Drs. Hugh L. Dwyer, Kansas City; J. Vardeman Bell, Kansas City; Rex L. Diveley, Kansas City; Philip S. Luedde, St. Louis; John McLeod, Kansas City, and Paul Baldwin, Kennett, the report of the Committee was not accepted.

Upon motion of Dr. Hugh L. Dwyer, Kansas City, duly seconded, the resolution was adopted.

Upon motion of Dr. H. B. Goodrich, Hannibal, seconded by Dr. R. E. Schlueter, St. Louis, the House of Delegates voted to go on record as expressing its deep appreciation for the fine and successful meeting that the Kansas City delegates and the members of the Jackson County Medical Society had provided.

On motion, duly seconded, the House of Delegates adjourned *sine die*.

MEETING OF THE COUNCIL

President Hotel, Kansas City

Monday, April 27, 1942—First Session

The first meeting of the Council convened at a luncheon meeting at noon, April 27, 1942, the Chairman, Dr. Curtis H. Lohr, St. Louis, presiding.

Roll call showed the following Councilors and Officers present:

1st District.....A. S. Bristow, Princeton
2nd District.....H. B. Goodrich, Hannibal
3rd District.....Curtis H. Lohr, St. Louis
4th District.....C. E. Fallett, DeSoto.
5th District.....W. A. Bloom, Fayette
6th District.....A. J. Campbell, Sedalia
7th District.....F. I. Wilson, Kansas City
8th District.....W. Wallis Smith, Springfield
9th District.....E. C. Bohrer, West Plains.
10th District.....E. J. Nienstedt, Sikeston
President-Elect..... H. L. Kerr, Crane

The minutes of the meeting of the Council on April 12 were approved.

The Chairman appointed Drs. W. A. Bloom, Fayette; H. B. Goodrich, Hannibal, and W. Wallis Smith, Springfield, as an auditing committee.

The report of the Treasurer was referred to the Auditing Committee.

The complaint of Dr. S. E. Meluney, St. Joseph, that the Buchanan County Medical Society had rejected his application for reinstatement was referred to the Buchanan County Medical Society for such action as the Society deemed advisable.

Each Councilor reported for his respective district.

A request for the appointment of a Committee on Study of Cardiac Disease was referred to the President-Elect for his study and action.

Upon motion of Dr. F. I. Wilson, Kansas City, the following resolution was adopted:

Whereas, The responsibility of the medical profession in wartime becomes greater than in peacetime, and

Whereas, One of the important phases of organized medicine in time of war is cooperation with the American Medical Association and the government in making information on physicians available, and

Whereas, The work of the Committee on Medical Preparedness and of the Procurement and Assignment Service has been conducted in Missouri with an efficiency which has brought commendation from the American Medical Association and the government, be it

Resolved, That the Council of the Missouri State Medical Association wishes to express its appreciation to Dr. Robert Mueller for the excellent service to the profession and the government in this work.

Upon motion of Dr. W. Wallis Smith, the hyphenation of the Barry County Medical Society with the Lawrence-Stone County Medical Society was approved.

The following honor members of the Missouri State Medical Association were approved for nomination to the American Medical Association for Affiliate fellowship: Dr. Benjamin Y. Jaudon, St. Louis; Dr. Horace W. Soper, St. Louis; Dr. William R. Strickland, Rock Port; Dr. Albert H. Hamel, St. Louis; Dr. Carl A. Jackson, Kansas City; Dr. Charles E. Allen, Kansas City; Dr. Hermon S. Major, Kansas City.

Col. W. W. Gist, Jefferson City, addressed the Council on Selective Service Work.

Wednesday, April 29, 1942—Second Meeting

The second meeting of the Council convened April 29 following the final meeting of the House of Delegates with Dr. Curtis H. Lohr, St. Louis, Chairman, presiding.

The election of officers for the year resulted as follows: Treasurer, Dr. R. L. Thompson, St. Louis; Executive Secretary, Mr. E. H. Bartelsmeyer, St. Louis; Assistant Editor, Helen Penn, St. Louis; Chairman of the Council, Dr. Curtis H. Lohr, St. Louis; Vice Chairman of the Council, Dr. W. A. Bloom, Fayette; Secretary of the Council, Mr. E. H. Bartelsmeyer, St. Louis.

Dr. Curtis H. Lohr, St. Louis, was appointed Chairman of the General Committee on Arrangements, and Drs. C. E. Fallet, DeSoto, and H. B. Goodrich, Hannibal, members.

On motion the Council adjourned *sine die*.

COMMITTEE ON MATERNAL WELFARE AND INFANT CARE

Luncheon Meeting

Monday, April 27, 1942—President Hotel

The annual meeting of the Committee on Maternal Welfare and Infant Care was held in the Ballroom, President Hotel, Kansas City, at 12:00 noon, April 27. Dr. E. Lee Dorsett, St. Louis, presided.

Dr. Willard R. Cooke, Galveston, Texas, was a guest of the Committee and discussed maternal deaths reported at the meeting.

BANQUET IN HONOR OF PAST PRESIDENTS

The banquet in honor of Past Presidents was held in the Ballroom, Hotel President, Kansas City, at 7:00 p. m., April 27, the President-Elect, Dr. H. L. Kerr, Crane, presiding in the absence of the President, Dr. R. B. Denny, Creve Coeur.

Dr. A. E. Eubank, Kansas City, President of the Jackson County Medical Society, gave an "Address of Welcome."

Dr. Rex L. Diveley, Kansas City, Chairman of the Local Committee on Arrangements, announced the various social activities of the Session.

The following Past Presidents of the Association were introduced: Drs. C. H. Wallace, St. Joseph; Herman E. Pearce, Tonganoxie, Kansas; Robert E. Schlueter, St. Louis; A. H. Hamel, St. Louis; A. R. McComas, Sturgeon; G. Wilse Robinson, Sr., Kansas City; Frank G. Nifong, Columbia; Frank I. Ridge, Kansas City; T. W. Cotton, Van Buren; J. F. Harrison, Mexico; W. Logan Allee, Eldon; C. T. Ryland, Lexington; Dudley S. Conley, Columbia; James R. McVay, Kansas City, and C. E. Burford, St. Louis.

Mr. Daniel Nee, Kansas City, Collector of Internal Revenue, made a short address.

Col. George F. Lull, M.C., Washington, D. C., Chief, Personnel Division, U. S. Army Medical Corps, delivered an address on "The Medical Officer in Our Wartime Army."

A President's reception and dancing followed the banquet.

MINUTES OF THE GENERAL MEETING

Municipal Auditorium, Kansas City

Monday, April 27, 1942—Morning Session

The scientific sessions were held in the Little Theater of the Municipal Auditorium, Kansas City, the first convening at 10:00 a. m. as a medical and surgical pathologic conference, Drs. Victor B. Buhler and Ferdinand C. Helwig, Kansas City, presiding.

Monday, April 27, 1942—Afternoon Session

The general scientific sessions were held in the Little Theater of the Municipal Auditorium, Kansas City, the first convening at 2:30 p. m., April 27. Drs. Harry L. Jones, Kansas City, and M. D. Overholser, Columbia, Vice Presidents, and J. E. Stowers, Kansas City, Chairman of the Committee on Scientific Work, presided at the sessions. Addresses were presented as follow:

Dr. K. W. Brimmer, Washington, D. C., "Faith, Hope and Cure-Alls."

Dr. Waltman Walters, Rochester, "Gastric Ulcer."

Dr. Willard R. Cooke, Galveston, "Three Important Advances in Obstetric Therapy: Analgesia, Intravenous Ergotrate in Third Stage of Labor, Magnesium Sulphate in Eclampsia."

Dr. George Herrmann, Galveston, "Some Medical Emergencies and Their Management."

Tuesday, April 28, 1942—Morning Session

Dr. R. B. Denny, Creve Coeur, Address of the President, "The Medical Profession in Wartime," presented by Dr. C. E. Burford, St. Louis, in the absence of Dr. Denny.

Dr. H. L. Kerr, Crane. Address of the President-Elect, "Medicine Today."

Dr. Waltman Walters, Rochester, "Problems in the Treatment of Lesions of the Biliary Tract."

Dr. Russell L. Haden, Cleveland, "The Differentiation of Obscure Anemia."

Dr. Cobb Pilcher, Nashville, "Neurosurgery in the War."

Dr. George Herrmann, Galveston, "Military Aspects of Cardiovascular Function."

Dr. Joe Vincent Meigs, Boston, "Endometriosis."

Following the presentations of addresses Colonel George F. Lull, Washington, D. C., answered questions regarding the Procurement and Assignment Service and Selective Service.

The Jackson County Medical Society presented a short radio skit entitled "Health and Happiness."

Tuesday, April 28, 1942—Noon Session

A Round Table Discussion was held at a luncheon meeting in the Ballroom, Hotel President, with Drs. Russell L. Haden, Cleveland; George Herrmann, Galveston; Cobb Pilcher, Nashville; Joe Vincent Meigs, Boston, and Waltman Walters, Rochester, participating.

Tuesday, April 28, 1942—Afternoon Session

Dr. Russell L. Haden, Cleveland, "Gout."

Dr. Cobb Pilcher, Nashville, "Protrusion of the Nucleus Pulposus and Other Causes of Lumbar Nerve Root Pain."

Dr. William H. Vogt, St. Louis, "How Shall We Treat Fibromyomata of the Uterus?"

Dr. Joe Vincent Meigs, Boston, "Amenorrhea and Dysmenorrhea."

Dr. Robert Elman, St. Louis, "The Correction of Acute Protein Deficiency in the Treatment of Surgical Shock, Severe Hemorrhage and Burns."

Wednesday, April 29, 1942—Morning Session

Dr. Hobart A. Reimann, Philadelphia, "Practical Aspects of Newly Discovered Forms of Pneumonia."

Dr. Arthur Purdy Stout, New York, "Clinical Diagnosis of Cancer of the Breast."

Dr. Raymond O. Muether, St. Louis, "Use of Stored Blood and Plasma in Clinical Practice."

Dr. Irvine H. Page, Indianapolis, "Hypertension and Its Experimental Treatment."

Dr. Oliver Cope, Boston, "Hyperparathyroidism: Sixty-Seven Cases in Ten Years."

Dr. William B. Kountz, St. Louis, "The Recognition and Treatment of Degenerative Heart Disease."

Donald E. Cummings, Denver, "Practical Application of Industrial Hygiene to Small Plants."

Wednesday, April 29, 1942—Noon Session

A Round Table Discussion was held at a luncheon meeting in the Ballroom, Hotel President, with Drs. Irvine H. Page, Indianapolis; Hobart A. Reimann, Philadelphia; Arthur Purdy Stout, New York; Oliver Cope, Boston, and Donald E. Cummings, Denver, participating.

Wednesday, April 29, 1942—Afternoon Session

Dr. Arthur Purdy Stout, New York, "Surgical Lesions of the Ileum."

Dr. Hobart A. Reimann, Philadelphia, "New Diseases Encountered in the Middle West."

Dr. Oliver Cope, Boston, "Principles in the Treatment of Burns."

Dr. Irvine H. Page, Indianapolis, "Treatment of Bright's Disease."

MISSOURI STATE MEDICAL ASSOCIATION REGISTRATION AT EIGHTY-FIFTH ANNUAL SESSION

First Councilor District—64

Atwood, William G., Carrollton
Baird, J. Edward, Excelsior Springs
Barney, Reuben, Chillicothe
Bauman, Henry C., Fairfax
Bloomer, Joseph A., Maryville
Brewer, Lake, Ridgeway
Bristow, Arthur S., Princeton
Broyles, Watkins A., Bethany
Buehrer, Cletus E., Lawson
Byrne, John I., St. Joseph
Calvert, Lewis C., Weston
Cline, Edward, Platte City
Collier, Alfred, Chillicothe
Cooper, John M., St. Louis
Cossins, Carlos E., Maryville
Cullers, Charles H., Trenton
Dawson, Lerton V., Excelsior Springs
Dowell, Donald M., Chillicothe
Dowell, George S., Braymer
Duff, Talbot S., Cainsville
Duffy, Oliver F., Trenton
Elam, William T., St. Joseph
Fordyce, Claude P., St. Joseph
Fuson, William A., Trenton
Gay, Elmer E., Richmond
Gilliland, Alvin O., Cameron
Goodson, William H., Liberty
Grace, Haynie M., Chillicothe
Grant, Claude S., St. Joseph
Greenbert, Charles, St. Joseph
Greene, Luther D., Richmond
Grimes, M. E., St. Joseph
Hendren, Glenn W., Liberty
Hogan, Frank E., Mound City
Hoshor, John C., Savannah
Howden, Thomas L., St. Joseph
Humberd, Charles D., Barnard
Johnson, Delbert P., St. Joseph
Kenney, William L., St. Joseph
Kimes, Ira D., Cameron
Lau, Gustav A., St. Joseph
Laws, Clarence J., Princeton
Lefkin, Philip, Platte City
Long, Forrest C., Savannah
McCracken, Samuel R., Excelsior Springs
Mairs, Edgar J., Trenton
Maltby, Burton, Liberty
Mullinax, Orr, St. Joseph
Parker, John Z., Pattonsburg
Perry, John M., Princeton
Peters, Glenn R., Cameron
Pickett, Clarence P., Mercer
Redman, Spence, Platte City
Robichaux, Eugene B., Excelsior Springs
Robichaux, Eugene C., Excelsior Springs
Schuhmacher, N. R., Liberty
Spalding, Wilber B., Plattsburg
Strobach, Rolla L., Cameron
Timerman, Arthur R., St. Joseph
Wallace, Charles H., St. Joseph
Wallace, Hilen K., St. Joseph
Werner, Charles H., St. Joseph
Wilson, Virgil R., Rosendale
Wortley, Cabray, St. Joseph

Second Councilor District—23

Cramb, Arthur B., Kirksville
Crowson, Egbert, Parnell
Davis, E. Val, Kirksville
Fleming, Thomas S., Moberly
Francka, Wenceslaus F., Hannibal
Gilfillan, Earl E., Memphis
Goodrich, Howard B., Hannibal
Grim, George E., Kirksville
Hardesty, Joel W., Hannibal
Hardy, John W., Sumner
Hawkins, George W., Salisbury
Hornback, George A., Hannibal
Jennings, Perry W., Canton
Leusley, Marvin E., Moberly
McArtor, Thomas R., Browning
McCormick, Frank L., Moberly
Montgomery, Enoch A., Unionville
Montgomery, John S., Milan
Noland, M. R., Moberly
Price, Robert P., Triplett
Stuart, Daniel D., Brunswick
Tatum, Harry E., Brunswick
Weir, Edward F., Meadville

Third Councilor District—47

Bailey, Fred W., St. Louis
Bartelsmeyer, E. H., St. Louis
Burford, Cyrus E., St. Louis
Dorsett, E. Lee, St. Louis
Elman, Robert, St. Louis
Ernst, Edwin C., St. Louis
Glenn, Joseph E., St. Louis
Green, John, St. Louis
Hamel, Albert H., St. Louis
Hammond, John J., St. Louis
Henske, Andrew C., St. Louis
Hickey, Robert F., St. Louis
Hines, Paul, Webster Groves
Klemme, Roland M., St. Louis
Kountz, William B., St. Louis
Lane, Clinton W., St. Louis
Lohr, Curtis H., Clayton
Luedde, Philip S., St. Louis
Luedde, William H., St. Louis
Moore, Neil S., St. Louis
Morris, Mary E., St. Louis
Morse, Frank L., St. Louis
Mosby, Charles V., St. Louis
Mudd, James L., St. Louis
Mueller, Robert, St. Louis
Muether, Raymond O., St. Louis
Murphy, Paul, Koch
Neilson, Charles H., St. Louis
Norton, Wm. Hudson, St. Louis
Pulliam, Madison J., St. Louis
Rosenfeld, Henry, St. Louis
Scherman, Victor E., St. Louis
Schisler, Edwin J., St. Louis
Schlueter, Robert E., St. Louis
Schnoebelen, Paul C., St. Louis
Scholz, Roy P., St. Louis
Seibel, Marshall G., St. Louis
Shutt, Cleveland H., St. Louis
Spector, Hyman I., St. Louis
Stryker, Garold V., St. Louis
Tainter, Frank J., St. Louis
Thompson, Lawrence D., St. Louis
Titterington, Paul F., St. Louis
Vaughan, John R., St. Louis
Vogt, William H., St. Louis
Woodruff, Frederick E., St. Louis
Zeinert, Oliver B., St. Louis

Fourth Councilor District—24

Brown, Eugene R., St. Louis
Creech, Joseph C., Troy
Donnell, R. H., Crystal City
Dyer, Clyde P., Webster Groves
Eyermann, H. Walter, Warrenton
Fallet, Charles E., DeSoto
Finley, Freeman L., St. Louis
Gaines, Quentin McD., Kirkwood
Harris, Harold S., Troy
Hayward, John D., St. Louis
Jensen, Julius, St. Louis
Kemp, Thomas J., St. Louis
Koch, Otto, St. Louis
McGavran, E. G., Clayton
McMurray, Herbert C., Wentzville
O'Connell, John, Overland
Schudde, Otto N., Ferguson
Stein, Harry J., St. Louis
Steiner, Alexander J., St. Louis
Sterling, John A., Maplewood
Thurmon, Josiah D., St. Louis
Walther, Roy A., St. Louis
Westrup, Arthur W., Webster Groves
Whitener, Paul R., Overland

Fifth Councilor District—43

Adams, C. Frederick, Jefferson City
Aldridge, M. R., Jefferson City
Allee, James W., Eldon
Allee, Warren L., Eldon
Barton, Wesley A., Boonville
Blankenship, George W., Boonville
Bloom, W. A., Fayette
Boley, James O., Pilot Grove
Brashear, Howard C., Mexico
Burke, John P., Jr., California
Chamberlain, Gilbert L., New Franklin
Coffman, Delmar L., Fayette
Conley, Dudley S., Columbia
Crews, Robert N., Fulton
Crouch, Richard L., Columbia
Delaney, Joseph H., Columbia
Eberhard, Theodore P., Columbia
Gunn, Aubrey J., Versailles
Gunn, William G., Versailles
Guyot, J. DeVoine, Jefferson City
Harrison, J. Frank, Mexico
Howard, Stanley P., Jefferson City
Jolley, J. Frank, Mexico
Latham, Logan L., California
LeMone, David V., Columbia
McComas, Arthur R., Sturgeon
McGuire, Morris S., Boonville
Motley, Hurley L., Columbia
Neal, M. Pinson, Columbia
Nifong, Frank G., Columbia
Norman, Joseph B., Tipton
Overholser, Milton D., Columbia
Robnett, Dudley A., Columbia
Russell, Richard L., Ashland
Shelton, Edward C., Eldon
Stauffer, Harry B., Jefferson City
Stewart, James, Jefferson City
Stewart, William J., Columbia
Summers, Joseph S., Jefferson City
van Ravenswaay, Arie C. H., Boonville
Walker, Grant D., Eldon
Washburn, J. Loren, Versailles
Young, H. McClure, Columbia

Sixth Councilor District—55

Aiken, George A., Marshall
Albers, Edward A., Pleasant Hill
Allen, Claude J., Rich Hill
Beckman, William, Strasburg
Bennett, James D., Cole Camp
Bishop, William T., Sedalia
Braecklein, William A., Higginsville
Brasher, Ben H., Lexington
Campbell, Albert J., Sedalia
Cooper, R. Lee, Warrensburg
Davis, C. Braxton, Nevada
Davis, Charles B., Nevada
Dawson, John W., Eldorado Springs
Ellis, Coburn, Sweet Springs
Fredendall, George W., Lexington
Garner, Lynn M., Higginsville
Gentry, Merritt L., Jefferson City
Hanks, Ralf, Nevada
Hansen, Arthur L., Appleton City
Hartwell, Basil O., Drexel
Haynes, Robert C., Marshall
Hollingsworth, Ray S., Clinton
James, Luther S., Blackburn
Johnston, Elza Lee, Concordia
Jolly, Benjamin N., Nevada
Kennedy, Robert W., Marshall
Koppenbrink, Walter E., Higginsville
Lawrence, John R., Marshall
Lissack, Edmund, Concordia
Liston, Odus, Oak Grove
Long, David S., Harrisonville
Luter, Carter W., Butler
McBurney, C. A., Slater
Martin, Forrest L., Nevada
Miller, Robert M., Belton
Moore, Ernest M., Sr., Higginsville
Nisbet, Eliga B., Odessa
Osborne, Charles D., Sedalia
Parker, Harry F., Warrensburg
Payne, Bryan T., Lexington
Powers, John A., Warrensburg
Robbins, Martin V., Peculiar
Robinson, Edward E., Adrian
Russell, John J., Deepwater
Ryland, C. T., Lexington
Schofield, Linn J., Warrensburg
Schooley, Reinick, Odessa
Shy, Milton P., Sedalia
Smith, Rollin H., Rich Hill
Stauffacher, C. Gordon, Sedalia
Thompson, William G., Holden
Triplett, Jacob S., Harrisonville
Walter, Archie L., Sedalia
Wensley, John E., Harrisonville
Wray, Rolla B., Nevada

Seventh Councilor District—253

Allen, Charles E., Kansas City
Allen, Charles H., Independence
Anderson, Richard W., Kansas City
Aschman, Theodore H., Kansas City
Asher, A. Graham, Kansas City
Astrowe, Philip S., Kansas City
Aull, John, Kansas City
Baer, Alvin J., Kansas City
Ball, James E., Kansas City
Becker, Richard R., Kansas City
Beil, J. Wallace, Kansas City
Bell, J. Vardeman, Kansas City
Bergmann, Victor H., Kansas City
Berry, Maxwell G., Kansas City
Black, W. Byron, Kansas City
Bourke, Timothy S., Kansas City
Boutros, Amin, Kansas City
Braden, David R., Mission, Kansas

Brainard, Benjamin F., Martin City
Brams, Jack B., Kansas City
Broyles, Glen H., Kansas City
Buhler, Victor B., Kansas City
Caldwell, John K., Kansas City
Cantrell, Cyrus D., Kansas City
Capell, Clarence S., Kansas City
Carlson, Hjalmar E., Kansas City
Carmichael, Francis A., Jr., Kansas City
Casford, Ralph S. Kansas City
Castles, John E., Kansas City
Cavaness, Ernest W., Kansas City
Clendening, Logan, Kansas City
Connell, Evan S., Kansas City
Counsell, Chester M., Kansas City
Cox, Kenneth E., Kansas City
Cummins, Walter F., Kansas City
Curdy, Robert J., Kansas City
Danglade, James H., Kansas City
Dann, David S., Kansas City
Davis, Robert C., Kansas City
Deweese, Everett R., Kansas City
Dickson, Frank D., Kansas City
Diveley, Rex L., Kansas City
Donaldson, Clyde O., Kansas City
Duer, Mildred C., Kansas City
Duncan, Ralph E., Kansas City
Dwyer, Hugh L., Kansas City
Elliott, B. Landis, Kansas City
Elliott, James R., Kansas City
Engel, Lawrence P., Kansas City
Etzenhouser, Russell D., Jr., Independence
Eubank, Ambrose E., Kansas City
Eubank, Dillard M., Raytown
Eubank, William R., Barkdale Field, Louisiana
Feierabend, Frank L., Kansas City
Feist, George V., Kansas City
Ferguson, Eugene H., Kansas City
Foster, Hal, Kansas City
Francisco, Clarence L., Kansas City
Frick, Paul, Omaha, Nebraska
Ganley, William C., Kansas City
Gard, Raymond F., Independence
Gempel, Paul A., Kansas City
Gentry, Enoch N., Kansas City
Gestring, Hugh A., Kansas City
Gilkey, Harry, Kansas City
Gilles, Clifford L., Kansas City
Gilliland, Oliver S., Kansas City
Gillmor, Charles S., Kansas City
Ginsberg, Edward L., Kansas City
Gist, William L., Jefferson City
Gist, W. Wilmet, Kansas City
Goldman, Max, Kansas City
Goodman, LeRoy, Kansas City
Goodson, William H., Jr., Kansas City
Grabske, Charles F., Independence
Green, John R., Independence
Greene, W. Wallace, Kansas City
Growdon, John A., Kansas City
Hall, Thomas B., Kansas City
Hallberg, John W., Kansas City
Halperin, Phillip H., Kansas City
Hamel, George F., Kansas City
Hamilton, Buford G., Kansas City
Hamilton, Hugh G., Kansas City
Hardacre, Ruth A., Kansas City
Harless, Morris S., Kansas City
Harrison, Addison M., Kansas City
Haynes, Lee, Kansas City
Haynes, Solon E., Kansas City
Heller, B. Marcus, Kansas City
Heller, Edward P., Kansas City
Helman, Richard G., Kansas City
Helsby, F. K., Kansas City
Helwig, Ferdinand C., Kansas City
Henderson, James P., Kansas City
Herrman, George V., Kansas City
Hess, H. Lewis, Kansas City
Heyer, Oscar C., Kansas City
Hickerson, John C., Independence
Hobbs, Earl B., Kansas City
Hoffman, Jacob S., Kansas City
Hogan, Daniel F., Kansas City
Hogue, Frank S., Kansas City
Howard, John C., Jr., Kansas City
Howard, Joseph W., Kansas City
Hunt, Claude J., Kansas City
Hunt, Paul F., Kansas City
Hurst, Martin J., Kansas City
Jansen, Robert, Kansas City
Johnstone, Paul N., Kansas City
Jones, George H., Kansas City
Jones, Harry L., Kansas City
Jones, J. Laurence, Kansas City
Jones, Kneeland P., Kansas City
Jones, Maurice L., Kansas City
Keeling, Irene C., Kansas City
Keith, Willis E., Kansas City
Kelly, Eugene H., Kansas City
Kerr, Russell W., Kansas City
Ketcham, William M., Kansas City
Klepinger, Dayton P., Kansas City
Knappenberger, George E., Kansas City
Knight, John S., Kansas City
Knight, Lyle B., Lees Summit
Koritschoner, Robert, Kansas City
Korth, W. M., Kansas City
Krueger, Owen W., Kansas City
Kuhn, William F., II, Kansas City
Kyger, E. Ross, Kansas City
Kyger, Fred B., Kansas City
Kyner, Thomas A., Kansas City
Lamar, Frederick C., Kansas City
Lapp, Harry C., Kansas City
Lapp, John G., Kansas City
Lee, Chester E., Kansas City
Leitch, Cecil G., Kansas City
Leitz, Frank B., Kansas City
Lemoine, Albert N., Kansas City
Lieberman, B. Albert, Kansas City
Lindquist, Carl N., Kansas City
Lockwood, Ira H., Kansas City
Lower, Mary J., Kansas City
McAlester, A. W., Kansas City
McAlester, A. W., Jr., Kansas City
McCallum, Francis M., Kansas City
McCandless, Oliver H., Kansas City
McClanahan, Robert C., Kansas City
McGuire, Clarence A., Kansas City
McLeod, John, Kansas City
McPherson, Owen P., Kansas City
McVay, James R., Kansas City
Mabry, Samuel A., Kansas City
Major, Hermon S., Kansas City
Mantz, Herbert L., Kansas City
Miller, Clinton L., Lees Summit
Miller, Hugh, Kansas City
Miller, Wade H., Kansas City
Monahan, E. P., Kansas City
Montgomery, James G., Kansas City
Morest, F. Stanley, Kansas City
Myers, Benjamin L., Kansas City
Myers, John L., Kansas City
Myers, Wilson A., Kansas City
Narr, Frederick C., Kansas City
Nigro, D. M., Kansas City
Nunn, Pat M., Kansas City, Kansas
O'Neill, James H., Kansas City
Owens, Guy E., Kansas City
Owens, Hugh H., Kansas City
Owens, Michael J., Kansas City
Owens, Patrick H., Kansas City
Padgett, Earl C., Kansas City
Parker, Hubert M., Kansas City
Passman, Harold, Kansas City
Pendleton, George F., Kansas City
Perry, Ralph, Kansas City
Petry, Ezra L., Kansas City
Pipkin, Garrett, Kansas City
Pittam, Radford F., Kansas City
Poorman, Bertram A., Kansas City
Postlethwaite, F. M., Kansas City
Prentiss, Harry S., Kansas City
Printz, Joseph H., Kansas City
Printz, Otto Jack, Kansas City
Rader, Ada B., Martin City
Rice, William, Kansas City
Richardson, Lyman K., Ft. Leonard Wood
Ridge, Frank I., Kansas City
Rinkel, Herbert J., Kansas City
Rising, Dean S., Kansas City
Rising, Jesse D., Kansas City
Ritter, Caleb A., Kansas City
Roberts, Harold M., Kansas City
Robinson, David B., Kansas City
Robinson, E. Kip, Kansas City
Robinson, G. Wilse, Kansas City
Rumsey, Frederick C., Kansas City
Rumsey, John M., Kansas City
Sanders, Clarence E., Kansas City
Scarpellino, L. A., Kansas City
Schauffler, Robert M., Kansas City
Schorer, Edwin H., Kansas City
Schutz, C. Bryant, Kansas City
Sheldon, John G., Kansas City
Shelton, Prior W., Kansas City
Shumate, David L., Kansas City
Simpson, Morris B., Kansas City
Sinclair, Alexander B., Jr., Kansas City
Singleton, J. Milton, Kansas City
Skinner, Edward H., Kansas City
Skoog, Andrew L., Kansas City
Smith, Arthur B., Kansas City
Smith, Clinton K., Kansas City
Snider, Samuel H., Kansas City
Stockwell, A. Lloyd, Kansas City
Stowers, James E., Kansas City
Sutton, Richard L., Jr., Kansas City
Tarson, Solomon S., Kansas City
Teachenor, Frank R., Kansas City
Teall, Raymond E., Kansas City
Thiele, George H., Kansas City
Thiessen, Edward H., Kansas City
Thomason, Henry E., Kansas City
Thym, Herman H., Kansas City
Trippe, Harrison C., Kansas City
Trowbridge, Barnard C., Kansas City
Trowbridge, Ellsworth H., Kansas City
Tuthill, Herbert, Kansas City
Twyman, Elmer D., Kansas City
Unger, Haro'd, Kansas City
Valentine, Herbert S., Kansas City
Van Del, Dwight T., Kansas City
Vanorden, Herbert F., Kansas City
Virden, C. Edgar, Kansas City
Wakefield, Franklin H. Kansas City
Watson, Ethel, Independence
Webster, Joseph, Kansas City
Welch, Eldred E., Kansas City
Welker, Joseph E., Kansas City
Wheeler, John H., Kansas City
White, Charles H., Kansas City
White, Edwin C., Kansas City
Willhelmy, Ellis W., Kansas City
Williams, Delon A., Kansas City
Williams, Vincent T., Kansas City
Wilson, Clifford C., Kansas City
Wilson, F. I., Kansas City
Wilson, Ralph R., Kansas City
Withers, Orval R., Kansas City
Wolfe, Sharkey, Kansas City

Wood, Lawrence E., Kansas City
Zoglin, Nathan M., Kansas City
Zuber, Harold V., Kansas City

Eighth Councilor District—15

Beatie, William R., Springfield
Bickel, Vern T., Lamar
Blanke, Otto T., Joplin
Brock, James C., Mt. Vernon
Bryan, E. M., Mt. Vernon
Burney, Wallace S., Miller
Cardwell, C., Stella
Clark, Samuel M., Halltown
Cole, Paul F., Springfield
Cowan, R. D., Aurora
DeTar, Burleigh E., Joplin
Dumbauld, Bunn A., Webb City
Dwyer, Thomas L., Mt. Vernon
Elkins, Ronald F., Fort Leonard Wood
Farthing, Fred R., Springfield
Farthing, Robert R., Ozark
Glover, Kenneth, Mt. Vernon
Hargrove, Fred T., Monett
Harrell, Roosevelt E., Buffalo
H'Doubler, Francis T., Springfield
Hogeboom, George W., Springfield
Holmes, Prince Albert, Mt. Vernon
Hoover, H. Lee, Springfield
Isbell, Charles H., Carthage
James, Robert M., Joplin
Johnston, Joseph L., Springfield
Kerr, Frank T., Monett
Kerr, Homer L., Crane
Kinney, William M., Joplin
Lowe, Horace A., Springfield
Lyons, L. Mason, Pierce City
McGaughey, Hugh D., Joplin
Macdonnell, Carey R., Marshfield
Neff, Robert L., Joplin
Poor, Carl W., Joplin
Post, W. L., Joplin
Reid, Charles T., Joplin
Sale, O. A., Neosho
Sewell, Walter S., Springfield
Simpson, Emerson L., Springfield
Smith, Wallis, Springfield
Stocker, Jesse A., Mt. Vernon
Wedin, Paul H., Mt. Vernon
West, William M., Monett
Wood, George H., Carthage

Ninth Councilor District—10

Bohrer, E. Claude, West Plains
Butler, Fred E., Salem
Callihan, C. F., Willow Springs
Cotton, Tolman W., Van Buren
Davis, H. Harry, Rolla
Frame, Homer G., Mountain Grove
Henson, Lafayette L., Bunker
Mallette, Cyrus, Crocker
Smith, James E., Rolla
Thornburgh, Albert H., West Plains

Tenth Councilor District—10

Baldwin, Paul, Kennett
Barron, W. Harry, Fredericktown
Luten, Joseph B., Caruthersville
Nienstedt, Elam J., Sikeston
Porter, Columbus H., Poplar Bluff
Roebber, Harry M., Bonne Terre
Tracy, Herbert A., Perryville
Walker, George W., Cape Girardeau
Whitten, Marion F., Poplar Bluff
Zimmermann, Carl A. W., Cape Girardeau

Guest Speakers—13

Brimmer, K. W., Washington, D. C.
Cooke, Willard R., Galveston, Texas
Cope, Oliver, Boston, Massachusetts
Cummings, Donald E., Denver, Colorado
Haden, Russell L., Cleveland, Ohio
Herrmann, George R., Galveston, Texas
Lull, George F., Washington, D. C.
Meigs, Joe Vincent, Boston, Massachusetts
Page, Irvine H., Indianapolis, Indiana
Pilcher, Cobb, Nashville, Tennessee
Reimann, Hobart A., Philadelphia, Pennsylvania
Stout, Arthur Purdy, New York
Walters, Waltman, Rochester, Minnesota

Visiting Doctors of Medicine, Interns and Students—51

Acker, J. E., Kansas City
Adair, Norman, Kansas City
Anderson, Richard, Kansas City
Ballard, Bryce, Kansas City, Kansas
Bankhead, Jack, Kansas City
Barnett, B. A., Kansas City
Beller, Willis, Kansas City
Bogan, Harvey, Kansas City, Kansas
Carlisle, G. M., Kansas City
Carnahan, R. G., San Antonio, Texas
Charles, Harvey P., Kansas City, Kansas
Collins, Thomas R., Kansas City
Copsey, H. G., Kansas City
Dailey, William, Kansas City
DeVilbiss, E. T., Kansas City
Dunham, R. H., Kansas City
Eidelman, J. R., St. Louis
Ellis, M. M., Columbia
Elstein, M. A., Kansas City
Flynn, James J., Kansas City
Francisco, C. B., Kansas City
Fritts, O. C., Osage City, Kansas
Gardner, Paul E., New Hampton, Iowa
Goss, Frank A., Kansas City
Gould, Henry, New York, New York
Hamilton, T. R., Kansas City, Kansas
Harrington, Paul R., Kansas City
Hickerson, William, Independence
Hilliard, J. D., Kansas City
King, E. O., Kansas City
Miller, Gerald L., Kansas City
Miner, Henry R., Falls City, Nebraska
Moore, A. O., Highland Park, Illinois
Moore, R. H., Lansing, Kansas
Morgan, H. E., Newton, Kansas
Movitz, David, Kansas City, Kansas
Mueller, Martin J., Kansas City
Myers, R. H., Kansas City
O'Brien, J. R., Kansas City
Piper, Don, Kansas City
Robb, C. P., Kansas City
Rudnick, Joseph B., New York, New York
Swartz, Carl, Kansas City
Sweany, R. B. T., St. Joseph
Thompson, J. W., Kansas City
Tillman, L. M., Kansas City
Upsher, A. E., Kansas City
Van Buskirk, Bill, Kansas City
Vest, F. E., Topeka, Kansas
Weirich, C. R., Pawhuska, Oklahoma
Wright, R. Paul, Kansas City

Visitors—45

Arnold, Chrisen, Denver, Colorado
Austin, L. C., Kansas City
Ballard, Dorothy, Kansas City
Bartelsmeyer, Mrs. E. H., St. Louis
Bartleson, W. H., Kansas City
Benjamin, T. B., Kansas City
Black, Patsy, Kansas City
Boyd, H. E., Kansas City
Bruce, Ethel, Kansas City
Cecilia, Sister Anna, Kansas City
Clatworthy, J. E., Harrisonville
Clower, Elizabeth, Kansas City
Costello, Mildred, Kansas City
Cowan, G. M., Fort Leavenworth, Kansas
Demetria, Sister, Kansas City
Dillan, F. E., Indianapolis, Indiana
Dixon, Dorothy, Kansas City
Edelman, Ida, Kansas City
Ellis, Mrs. M. M., Columbia
Erlanger, Herman, Kansas City
Errol, Albert, Kansas City
Fisher, Joseph L., St. Joseph
Halferty, Alma, Kansas City
Heitmann, Betty, Kansas City
Jacobs, Mrs. Morton, Kansas City
Jordan, R. C., Kansas City
Land, Mrs. Eleanor, Kansas City
Lanterman, B. LaRue, Kansas City
Levin, Emelie, Kansas City
Levin, Leonard, Kansas City
Mathis, Pauline, Olathe, Kansas
Merrill, Helen, Kansas City
Motley, Mrs. Hurley L., Columbia
Motsinger, Dorothy, Kansas City
Shore, Helen, Kansas City
Slocum, F. E., Kansas City
Smith, Marjorie, Kansas City
Speed, H. K., Fort Leavenworth, Kansas
Sweet, E. R., Kansas City
Thomas, Rhea, Kansas City
Wempe, Thelma Rose, Kansas City
Whitebook, Dorothy, Kansas City
Williams, Maxine, Kansas City
Wold, Edna L., Kansas City
Wyst, Vera Vander, Kansas City

Exhibitors—114

Alexander, George B., Los Angeles, California
Allee, H. R., Kansas City
Benton, Mrs. E., Kansas City
Bergstrom, M. H., New York, New York
Blauw, C. E., Kansas City
Breckenkamp, A. W., St. Louis
Brown, A. Elmore, Kirkwood
Burlingame, J. B., New York, New York
Cameron, A. S., Chicago, Illinois
Carpenter, C. M., Kansas City
Carter, Robert, Kansas City
Chamberlain, Fred C., Kansas City
Chenoweth, I. D., Kansas City
Clever, Betty, Kansas City
Costello, M. J., New York, New York
Coulter, W. M., Wichita, Kansas
Counsell, J. E., Kansas City
Counsell, John E., Kansas City
Davis, William H., New York, New York
Dixon, W. J., Kansas City
Downs, Mrs. B. M., Kansas City
Doyle, Gerald D., Kansas City
Erwin, G. B., Kansas City
Everson, G., Kansas City
Fairchild, L. E., New Orleans, Louisiana
Farris, F. A., Kansas City
Fortner, M. A., Kansas City
Fox, Byron, New York, New York
Frederick, L. H., Kansas City
Fritts, Ralph, Kansas City
Gee, Roy W., Kansas City
Geise, G. Ed., Covington, Kentucky
Glass, Emory, Kansas City
Gordon, O. E., Kansas City
Gould, A. C., Kansas City
Graham, W. R., Kansas City
Greb, E. N., Kansas City
Greb, Gordon, Kansas City
Hensler, Alan, Kansas City
Hewitt, Con Merle, Kansas City
Holder, Robert W., Kansas City
Holmes, Clay P., Kansas City
Holzapfel, Paul, Kansas City
Hoyer, Fred, Kansas City
Hutcherson, Frank E., N. Kansas City
Isle, Mrs. Anna C., Kansas City
Jamieson, A., Kansas City
Jensen, A. W., St. Louis
Jones, O. H., Kansas City
Jones, Mrs. O. H., Kansas City
Kaiser, G. F., Kansas City
Kozak, F. J., Kansas City
Lang, Lewis, Philadelphia, Pennsylvania
Laughlin, C. W., Kansas City
Lee, M. L., Kansas City
Linhares, Bud, Kansas City
Liscum, Fred, Kansas City
Logan, George E., Kansas City
Long, Kenneth V., St. Louis
McBride, Harold, New York, New York
McConnell, Kenneth, Kansas City
Martz, Del, St. Louis
Medlock, Bryan, St. Louis
Meffert, Carl G., St. Louis
Multaler, Fred, Chicago, Illinois
Nelson, Carl E., Kansas City
Nelson, Mrs. Irene, Kansas City
Oberst, George P., Webster Groves
Palmer, Ben, Kansas City
Patterson, M. E., Brentwood
Phillips, T. A., Philadelphia, Pennsylvania
Poston, R. F., Kansas City
Pratt, H. H., Kansas City
Ree, J. S., Kansas City
Ree, Mrs. J. S., Kansas City
Robel, T. B., Kansas City
Rooks, P. E., Mission, Kansas
Russell, C. H. C., Kansas City
Sandusky, R. R., Kansas City
Schadel, A. F., Kansas City
Schulte, Harry, Kansas City
Schulte, W. H., Kansas City
Scott, W. C., Kansas City
Seibel, D. S., Kansas City
Semple, J. Howard, New York, New York
Shelton, H. I., Kansas City
Sherburne, A. H., Kansas City
Sherman, Harold, New York, New York
Sherman, Mrs. Harold, New York, New York
Siebrandt, J. R., Kansas City
Smith, L. H., Kansas City
Smith, T. W., Kansas City

Stoltz, R. S., Springfield
Striegel, Vincent, Kansas City
Striegel, Mrs. Vincent, Kansas City
Subert, W. W., Kansas City
Sullivan, A. H., Kansas City
Sullivan, R. G., Kansas City
Timmons, W. H., Kansas City
Tracy, D. O., New York, New York
Turner, H. O., Newark, New Jersey
Underwood, R. L., Kansas City
Vance, Riley, Kansas City
Van Osdell, J. F., Kansas City
Walker, T. M., Kansas City
Wells, R. E., Kansas City
Wertzberger, Mars V., Kansas City
White, E. W., Kansas City
Wilson, Sue, Kansas City
Wolff, Stephen J., St. Louis
Wood, H. L., Kansas City
Woods, Fred R., Kansas City
Wulfmeyer, D. H., Kansas
Wyly, W. J., Kansas City

TOTAL—797

Woman's Auxiliary—98

SECOND COUNCILOR DISTRICT

H. B. GOODRICH, HANNIBAL, COUNCILOR

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society met May 12 in the Club Room of the Jones Cafe where an excellent meal was served after which the meeting was called to order by the president, Dr. P. V. Dreyer, Huntsville.

Dr. Joseph Lederman's tranfer was accepted and he was made a member of the Society.

Dr. J. G. Murphy was voted into the Society as a new member.

Dr. Marvin E. Leusley, Moberly, made an excellent report on the State Meeting at Kansas City.

Dr. Luther O. Nickell, Moberly, made a motion which was seconded by Dr. R. H. Williams, Moberly, that the Society have a summer vacation until September. Dr. Dreyer suggested that the next meeting be held the second Thursday of September. This motion carried.

At the request of Mrs. Eckels, chairman of the Home Defense Council, Dr. Nickell presented the subject of "Home Defense" to the Society and it was approved.

Those present were: Drs. P. V. Dreyer, Huntsville; F. A. Barnett and M. C. McMurry, Paris; J. G. Murphy, R. H. Williams, J. Maddox, M. E. Leusley, L. O. Nickell, F. L. McCormick, M. R. Nolan, H. C. Griffiths, L. E. Huber, Joseph Lederman and R. D. Streetor, Moberly.

F. L. McCormick, M.D., Secretary.

EIGHTH COUNCILOR DISTRICT

WM. WALLIS SMITH, SPRINGFIELD, COUNCILOR

Dallas-Hickory-Polk County Medical Society

The Dallas-Hickory-Polk County Medical Society met in Buffalo, June 2. Dinner was served at the Williams Cafe at 7:00 p. m. The scientific session was held in the office of Dr. G. C. Plummer. The following were present: Drs. G. G. Robertson and A. J. Stufflebam, Humansville; C. H. Brown, Fairplay; J. T. Roberts, and D. C. McGraw, Bolivar; T. D. Wrinkle, Halfway; L. A. Glasco, Urbana; V. H. Greenwood and G. C. Plummer, Buffalo.

Dr. C. Souter Smith, Springfield, spoke on "Chemotherapy." Dr. Smith detailed the use of the sulfa drugs in various diseases with a note of warning to watch for reactions that may accompany their use.

Dr. Wallis Smith, Springfield, presented a paper on "Mortality in Appendicitis" in which he discussed the different schools of thought in handling cases at various stages.

A discussion followed in which the members took part and Dr. Smith answered many questions.

The Society will meet at Fairplay on July 7.

R. E. Harrell, M.D., Secretary.

TENTH COUNCILOR DISTRICT

ELAM J. NIENSTEDT, SIKESTON, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met in the St. Francois County Courthouse, Farmington, May 29.

Several reels of color films loaned by Eli Lilly Company were shown by Dr. Paul J. Schrader, Farmington. These films depicted the results of dietary deficiency in both animals and man, particularly the vitamin B deficiencies. The films revealed excellent photography and were well received by the members. They were followed by a "talkie" travelogue which was very interesting.

Members present were Drs. H. W. Barron, E. E. Higdon, M. B. Barber and T. L. Waddle, Fredericktown; J. S. Thurman, Potosi; J. P. Yeargain, Irondale; Van W. Taylor and D. E. Smith, Bonne Terre; H. C. Gaebe, Desloge; R. E. Harland, Ironton; Rueben Appleberry, N. W. Hawkins, P. J. Schrader and C. C. Ault, Farmington.

C. C. Ault, M.D., Secretary.

BOOK REVIEWS

The Therapy of the Neuroses and Psychoses. A Socio-Psycho-Biologic Analysis and Resynthesis. By Samuel Henry Kraines, M.D., Associate in Psychiatry, University of Illinois College of Medicine, etc. Philadelphia: Lea & Febiger. 1941. Price $5.50.

The author presents this 512 page volume to the medical profession in general. However, it is sufficiently technical and comprehensive for the neurologist and psychiatrist to enjoy.

A foreword, sincerely written, commends the author. The eminent psychiatrist, Dr. Adolph Meyer, is responsible for this. He admits that the line of demarcation between the normal, neurotic, psychoneurotic and psychotic is somewhat indefinite. Suggestion, hypnosis, drug therapy and psychoanalysis, including the Freudian system, are given adequate consideration.

Interspersed at appropriate places for the various chapters one finds interesting case reports. Most of these are brief enough to be read by any physician. They add materially to the text.

A good index is included. The book is well worth considering by any member of the medical profession.

A. L. S.

Diagnosis and Treatment of Menstrual Disorders and Sterility. By Charles Mazer, M.D., F.A.C.S., Assistant Professor of Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania; Gynecologist to the Mount Sinai Hospital, Philadelphia, and S. Leon Israel, M.C., F.A.C.S., Instructor in Gynecology and Obstetrics, School of Medicine, University of Pennsylvania, etc. With 108 illustrations. New York: Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers. 1940. Price $6.50.

In this book of thirty chapters, the closely related subjects of menstrual disorders and sterility are exhaustively discussed. Since infertility involves both marital partners there is also included a special chapter on sterility in the male. In addition, the appendix lists a large number of commercially available standarized endocrine products and indicates their relative concentrations.

This is an excellent book which even the specialist could read with profit. It is a mine of useful informa-

tion presented in a readable manner. The typography is excellent. The numerous illustrations are well chosen and instructive. One might, however, take exception to some of the authors' recommendations. For example, they cite the literature in support of their advocacy of roentgen therapy in amenorrhea and sterility. It is to be admitted that such treatment definitely seems to help some patients and that in the first generation the offspring is apparently unaffected. But if there is any analogy with animal experimentation serious disturbances might be expected to appear in subsequent generations. The authors themselves warn that such treatment should be entrusted only to the most skillful roentgenologist but say little about possible untoward results. It also seems to the reviewer that there is a little too much optimism shown in the enthusiastic recommendation of endocrine products in the treatment of abnormal menstruation and sterility. This is especially noticeable in the discussion of the use of pregnant mare's serum in anovular menstruation. R. G. H.

The Art and Science of Nutrition. A Textbook on the Theory and Application of Nutrition. By Estelle E. Hawley, Ph.D., and Grace Carden, B.S., The University of Rochester, School of Medicine and Dentistry, Rochester, N. Y. With 140 illustrations including twelve in color. St. Louis: The C. V. Mosby Company. 1941. Price $3.50.

This book is an excellent summary of the present day conception of nutrition. The 139 illustrations are particularly good as are the food tables in the appendix.

This book should be of value to the internist and general practitioner, as well as the dietitian and can be used to great advantage by the more intelligent patient. It should also prove a valuable reference book for the nurses training school. H. R.

Treatment of the Patient Past Fifty. By Ernst P. Boas, M.D., Associate Physician, Mount Sinai Hospital, New York City; Chairman, Committee on Chronic Illness, Welfare Council of New York City; Assistant Clinical Professor of Medicine, Columbia University. 304 South Dearborn Street, Chicago: The Year Book Publishers, Inc. 1941. Price $4.00.

With the constant increase in the number of people over the age of 50 there is every reason to congratulate the Yearbook Publishers for riding the wave of the future and bringing out this practical monograph by Dr. Boas. This is not essentially a textbook upon geriatrics. It is a practical description of diagnostic and treatment methods for the patient beyond 50.

After the introductory chapters on aging and disease, the aging process and the general management of the aging and aged person, the author devotes the first half of the book to the various expressions of cardiovascular disease. These are the principal causes of death after 50. It is necessary for the older individual developing one of the cardiovascular diseases to learn how to live with his disease. It is recalled that Osler, when asked the secret of longevity, replied that it is best to develop a chronic disease and then learn how to take care of it.

The other half of the book is devoted to pulmonary diseases such as bronchial asthma, tumors, lung abscess, emphysema; diseases of the gastrointestinal tract, such as constipation, peptic ulcer, diverticulitis, hemorrhoids, cancer of the esophagus, stomach and colon and arteriosclerosis of the mesenteric arteries. There are chapters on diseases of the liver and bile passages, genito-urinary tract (including the male climateric), bones, joints, gout and the arthritides, diabetes, eyes, skin and nervous system.

The monograph is not burdened with statistics or sociologic generalities. There is emphasis upon immediate and exact determination of function in the presence of disease processes. Specific therapy is offered for a host of conditions. The book is written for the average practitioner of medicine who finds that he has an increasing number of older patients who must learn to live with a chronic disease and are intelligent enough to want to know why they cannot feel as young as they wish they were. Their fears and discomforts of older age must be dispelled by knowledge. When magic, hope and prayer no longer are dependable therapies these people turn to their physician for advice and treatment. This book will help the physician to give good advice. E. H. S.

Essentials of Endocrinology. By Arthur Grollman, Ph.D., M.D., Associate Professor of Pharmacology and Experimental Therapeutics in the Medical School of the Johns Hopkins University, etc. Seventy-four illustrations. Philadelphia, London, Montreal: J. B. Lippincott. 1941. Price $6.00.

The importance of the endocrines in health and disease and the difficulty in elucidating information about them have made endocrinology a fascinating subject for study and research and have resulted in the gathering of a voluminous amount of information. In addition, the large profits to be gained from the endocrine products have stimulated the introduction of many well publicized products by manufacturing houses. These facts have made endocrinology susceptible to extensive theorizing and speculation, with the occasional promulgation of unwarranted conclusions.

Thus it is pleasing to see a book written in a more restrained and scientific style. Dr. Grollman is associate professor of pharmacology and experimental therapeutics at Johns Hopkins Medical School and has previously written a book on the adrenals.

The discussion of each endocrine organ begins with its anatomy and histology, then continues with its pathology, physiology and pharmacology and, finally, takes up the various diseases of the organ.

The author is an authority on his subject. He writes clearly and with a pleasing style. The book is interesting to read and covers the field completely. The front and back covers bear charts of commercial endocrine products. The reviewer is pleased to see a book on clinical endocrinology firmly grounded on experimental work, taking cognizance of its limitations as well as its possibilities. D. J. S.

Immunology. By Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P., Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. Second edition. Illustrated. St. Louis: The C. V. Mosby Company. 1941. Price $6.50.

The second edition of this book appears six years after publication of the first. Chapters on the reticuloendothelial system and on serum reactions have been added and there have been some rearrangement and deletion of material.

The author includes discussion of phases of bodily resistance not always included under the heading of immunology. Thus some chapter headings read "Inflammation and Leukocyte Response," "The Reticuloendothelial System" and "Anatomical and Physiological Factors in Infection and Resistance of the Individual."

Much attention is given to the development of the subject. A simple passing statement may be prefaced by reference to the several investigators who established the fact. The chapters are followed by long bibliographies. The opposing sides in differences of opinion may be presented in detail.

The book is authoritative and up to date. The style is lucid and it is easily read. The author has placed this work on a broad biologic basis and has integrated this well with the clinical and practical aspects of the subject. D. J. S.

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OF THE

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THE MEDICAL OFFICER IN OUR WARTIME ARMY

COL. GEORGE F. LULL, M.C.

Chief, Personnel Division, United States Army Medical Corps

WASHINGTON, D. C.

Physicians have been told a lot of things. Some of them were believed and some of them were not believed. Some of them were true at the time but have been changed. I am going to discuss a few things about the needs of the Army in the way of medical manpower and explain what is wanted and how the Army intends to get it.

At present there are thirteen thousand Medical Corps Officers on duty. This is five thousand behind the present program today, and twenty-eight thousand will be needed by January 1, 1943. There are 180,000 physicians in the country and the military needs will take a large percentage of them. It is the young men that are wanted. Each year the medical schools of this country turn out five thousand graduates, the average age being 26 years; and taking the ten year period of 26 to 35 and multiplying by the number of men graduated, there are fifty thousand men. Some die, some cannot pass the physical examination and some are women. However, there would seem to be an adequate number of medical men in that age group who could join the colors.

A lot has been said about procurement and assignment. Procurement and assignment was started by medical men. The Procurement and Assignment Service was supposed to be a sieve. Through this sieve would filter the medical manpower to the various branches of the service; and this fine-meshed sieve would retain the men needed in industry, needed in certain places in practice and in teaching institutions. Many people thought they were contributing to the war effort when they signed up for Procurement and Assignment and they have been saying, "I am ready any time they call me." They will never be called; it is still on a voluntary basis. They may send a questionnaire—questionnaires are very common now. Undoubtedly many physicians have filled them out.

Colonel Gillespie, a Britisher stationed at Carlisle Barracks, said that in one district in London, shortly after the bombing began, they were trying to arrange air raid shelters for the office personnel and clerks and a questionnaire was sent out. When the questionnaires were returned they noticed that all the women answered the question, "Do you suffer from claustrophobia?" with "Yes." He said to the chief clerk that something must be wrong as that is a rare condition. So, he went to one of the girls and said, "I notice you answered this question 'Yes.' Why?" The girl replied, "Well, we didn't know what the word meant so we looked it up in the dictionary and found it meant 'fear of confinement.'" So all the women answered in the affirmative.

Physicians have filled out the questionnaires and probably have sent them in and are waiting to see what happens. My remarks tonight are directed both to the group of men who were in the last World War and those eligible for this one. Many of the first group say they are just as good as they ever were, but they are not. Every day some man will come in the office and say, "I am 60 years old but I am just as good as any young man." But he is not. No one who is over 50 is as good as a young man. He may think as clearly, or at least think he does, but his reactions are slower—he cannot keep up. This is a mechanized war and it takes the young men to keep up. It is a young man's war and the old man is not in it. But every old man who can stay at home and persuade some young man to go into the service—take over some of his civilian duties so he may go—is doing his part in helping to win the war. Just the other day a telegram came from a man who had registered with the Procurement and Assignment Service. He had filled in the questionnaire and had had a physical examination, so he was sent a commission. He wired me, "I do not desire a commission and am returning it to you. I am already registered under Procurement and Assignment." Just what would one do in a case like that? There has been some complaint

Presented at the 85th Annual Session of the Missouri State Medical Association, Kansas City, April 27, 28, 29, 1942.

about delay in getting commissions and it is justified. I mean the complaint, not the delay. Let me explain what happens when a man applies for a commission. Remember, Procurement and Assignment was started on a shoestring—without funds and with only a few clerks. Thousands of physicians wrote in about Procurement and Assignment. The mail piled up and the Service could not answer the letters, could not send out blank forms. Finally, they got partially caught up and sent out the blank forms. The physician said, "Well, they have been a long time answering, so I guess I can take my time," so, in a couple of weeks he filled in the form and asked to be made a lieutenant colonel. I do not know why all physicians picked out that rank; they did not want to be generals or colonels, just lieutenant colonel. Well, a physician receives a letter saying he has been made lieutenant and that makes him mad and he throws the letter down and does not answer it for several days—and that goes on for three months. By that time his blood pressure is up and he has to go back for a recheck. Then he sends in his blank and it is lost, and that is extra delay. That explains the delay. But the office is trying to send out the commissions. One hundred a day are being put out but that is not enough. It will take more than that. There is one way men can be obtained for the Army, and that is by draft. The draft law is very clear and if General Hershey simply notifies a draft board to get six thousand men, the board will do so. So it might be better to accept the commission sent rather than to go in at $21.00 a month.

Of course people ask me all sorts of questions. A man on the draft board asked me this: "Suppose Doctor Jones is in 3A; I am on the draft board and we call Dr. Jones up and say, 'You had better get your commission or you will be drafted.' He says, 'I do not want a commission and I will not take one.' What are you going to do with him?" I said, "If he will not accept a commission, take him in anyway. There is lots of work for willing hands." That is just one case. All kinds of things come up and have to be threshed out. The hard thing is trying to put a square peg in a round hole, and it comes up every day. Why is not Doctor Smith, who is an otolaryngologist not doing otolaryngology? He is now doing something else with an ambulance company. Well, there are many reasons for that. Look at the combat officers of the line. The combat officer leaves his profession, whatever it is, and goes into the Army to become a combat officer. There is no counterpart in civil life for the combat officer. When he leaves his profession he has to learn everything from the bottom up. The average physician will not do that; the average physician wants to do what he did at home; he is wasting his time to do anything else. It is fine if a man can be placed where he can still work in his specialty, but it is not always possible. Take the gynecologists, obstetricians and pediatricians. There are very few places for them but there are quite a few in service and they are doing splendid work outside of their specialties. Then there is the young man who thinks he is a specialist. He started out as soon as he graduated to become a specialist and he has been working at it for two or three years. He is the man who is really heartbroken when he has to give up his specialty. He says, "What will I do? I will never get by the American Board!" I hear that every day. Perhaps it does not matter whether that young man gets by the American Board or not. The men over in Bataan and Corregidor did not have to show a certificate from the American Board but they are over there doing a fine job. As long as these specialists can be used in the field of their chosen work, they will be; but every once in a while one gets outside and he is the one who causes trouble.

This program is going ahead. It is going ahead even if the physicians do not volunteer. But, gentlemen, it will reflect on all the medical profession if it does not come across as the people of the United States expect it to do. It has always been known for generosity in every field. In the last World War volunteers fell over each other to get in; in this war I think the same thing would have happened if there had not been so much confusion at the start. But now if each physician will just go back home and tell the younger men that just because they registered in Procurement and Assignment does not mean that they should sit down and wait to be called! If they have not heard from this office, on receipt of a postal card with the name of the physicians, blank forms will be sent them and they will be enrolled whether they enrolled in Procurement and Assignment or not, and they will be called through Procurement and Assignment.

Starting east of the Mississippi, a medical officer and a couple of clerks are being sent to work with Procurement and Assignment and they will go to each state east of the Mississippi. They will recruit medical officers and give them commissions on the spot so a man can get in as soon as he has had a physical examination. If there is an Army station in the town, he can get an examination in the morning and by afternoon he will be an officer; the papers can be sent in by air mail and he will be given a station the next day. He can have two or three weeks to close up his affairs and he will be on active duty at the end of that time. Next month there will be a meeting in Omaha or in Denver and work west of the Mississippi River will be started. But no one need wait for the recruiting officers; they may never get around to your town. All one has to do is to drop a postal card to The Surgeon General's office in Washington, D. C., and we will do the rest.

All kinds of questions are asked me as I go around the country and I will try to answer a few of them. The first thing a man wants to know is, "What rank do I get?" Let me go into that a little. Men who were in the last World War will remember that when a man arrived the commanding officer said, "Do you work in any specialty?" And nine times out of ten the man answered, "Yes, I

do surgery." There was no way of checking up on him. He went in, and it was found that sometimes he did surgery and sometimes he did not. In this war it is different because any man who claims to be a specialist can readily be checked up on. It takes only five minutes. As to the rank, all men under 37 are commissioned in the lowest grade in the Medical Corps, which is one grade higher than the line, first lieutenant. If a man has been certified by the American Board and is under 37, he is given an extra rank and is made captain. A man between 37 and 45 will be commissioned a captain if he has no qualifications. However, if a man above 38 is certified, he is given a commission in a higher grade. There cannot be a hard and fast rule because it depends upon his experience. Any man above 38, who is certified, is taken for granted to have had more experience than a man under 37. Above that the only men to receive higher commissions are consultants or men who are chiefs of service in large hospitals.

The question often comes up about the man in general practice who is 50 years of age. He asks, "What grade do I get if I come in?" In the first place, that man is more valuable at home than in the service because if he goes a younger man has to do his work. How is that man to be used? He is 50, he is not qualified as a specialist. If he were a younger man plenty of work could be found for him to do. He can not go with the troops; he has to stay in a hospital. A man of that age cannot be commissioned lieutenant or captain as he would be self-conscious in a uniform. If he is put in a hospital with some of these younger men under him, he would be embarrassed and so would they. Sometimes rank leads to embarrassment. Rank in the Army simply means that a man is given the rank to do a certain job. Rank has a lot to do with position, but it is not based entirely on age. It is based on age, qualifications and experience.

Many of these men are individualists, and they call me up and ask, "How long will it take to get into the Army, what will I do, what rank will I have and where do I go?" As to where he goes, if he is a specialist probably to any hospital in the pool. It is hoped to keep a pool of specialists in the larger general hospitals so that when new hospitals are built these qualified men can be sent to the new hospitals. If he is a young man with no special qualifications he can be sent to the pool at Carlisle Barracks, or out with a replacement center; or if he is needed with troops he will be sent over with troops. There has not been time to build up the pool because of the shortage of men. It is up to us to see that there are enough men because the American public will demand that the soldiers be taken care of properly. Mr. McNutt has been put in charge of manpower; it appears to be a job in which the medical profession did the pioneer work. The Procurement and Assignment Service has to do the procuring of medical manpower, and it is under Mr. McNutt. The medical profession started the Procurement and Assignment Service and it should see that it works. It should be made to work because through it not only the procurement of medical manpower is solved but also the health problems of the community and the hospitals.

Another question that often comes in is, "What is an essential man?" There are a lot of men in the medical profession, apparently, who are essential to their home town, their hospital and their school. It is true that there are many of these people, but when one looks over the lists and sees, for instance, that one dean of a medical schools puts down every man he has as being essential, I wonder. I feel that that man is a good poker player—he puts them all down hoping he will not get more than a 50 per cent cut. On the other hand, the Presbyterian Hospital at Trenton, New Jersey, sent in their list saying that they have only one man who is essential. He is 76 years of age and is exempt from military duty. That is the other extreme. Early in the program it was attempted to arrange it so that public health officers should be deferred. One list was sent giving the names of key men who were essential, and after one of these names the statement was made that he was away taking a two year postgraduate course. Many of them are about in that category, so the term "essential" is entirely relative. So many residents and assistant residents in hospitals are now highly essential men.

Young men are needed and needed badly. There have been reports about the men who have been assigned to tactical units for duty, or to therapy units. One does not hear so much since Pearl Harbor and one does not hear of so many men wanting to be transferred; they are all doing their job. In theory it takes eight medical officers for one thousand men; but when there are two medical officers for three thousand men, they are too busy and cannot do a good job. Before Pearl Harbor, whenever an officer wanted to be transferred, if there was a call for foreign service, very few wanted to go, and I suppose half of them came to Washington to see me. I think every lieutenant in medical school was about to become a parent. One day a boy walked into the office, looked around and said, "I am Lieutenant Blank, from such-and-such a camp. I have been ordered to Hawaii." I said, "When is your wife going to have a baby?" He said, "Why, how did you know; we haven't told anyone yet!" That is what happens all the time. But altogether, the boys are doing their job and doing a good job. Hospitals in many places are understaffed, but they are doing their job and the men are taking good care of their patients, whether in tactical units or in hospitals. They are not perfect, but none of us is, and I think we have a right to be proud of those officers who have volunteered for service and are in combat duty. I hear from them from all around the world and I think most of them are fairly well satisfied. Some are not, but we cannot satisfy everybody.

In closing, I want to leave this message for the younger men, that the sooner we get them the

better satisfied they will be and, in the long run, the better will we be satisfied.

Office of the Surgeon General.

DISCUSSION

Question: If a man is in the draft age, that is, under 45, and does not respond but waits until he is drafted, will he be shown the same deference that he would if he had volunteered his services, and how long will it take him?

Colonel George F. Lull, Washington, D. C.: If he is drafted he will enter as a private and if doctors were not needed he would remain a private. However, doctors are needed and after he is drafted he can apply for a commission and it will come through in from four to eight weeks. Remember, the doctors are given preferential treatment. They are in a class given more preferential treatment than any other, with the exception of ministers of the gospel. No banker, no lawyer, no accountant, can apply for a commission and get it. It is true they have taken some men into service straight from civilian life. The commissions are given to men who enlist and who during the first four months go to an officers' training school. If they are successful there, they are commissioned in the lowest grade of each branch.

Question: What provision is made for supplying the Navy with medical officers?

Colonel Lull: The Navy is supplied the same as is the Army. The Navy is supposed to be supplied by making requisition for a list of names under Procurement and Assignment. For instance, the Navy wants ten surgeons, ten interns and ten nose and throat men. They make requisition for that number and get a list of names the same as the Army does except that the Army requisition states it will take any man under 45.

Question: Would the Navy have any field service like work in hospital wards?

Colonel Lull: They have a ship-and-shore service, a service with the Marines, the same as the Army. The Marines are organized in forces of various kinds and they use the Navy Medical Corps.

Question: Can a man under 45 hasten his application and admission to the Army?

Colonel Lull: Yes, he can write directly to The Surgeon General and state that he has applied for a commission and has filled in the proper form, No. 170.

Question: We were told that the osteopaths are being excluded from the Army, that the draft board had instructions to defer them on account of the need of their services in civilian life.

Colonel Lull: We are not interested in the osteopaths in the Army. That statement covers the Army's stand about the osteopaths. It is not interested in the osteopath any more than in a boilermaker or a structural steel worker, it does not want them. Civilian service apparently recognizes osteopathy as one of the healing arts and therefore they say these men will be given some consideration. I think it is up to the local draft board. If the local board decides that the osteopaths are required in a community they will be kept there; if they are not essential, they will be drafted.

Question: Does the local draft board have the last word in deciding?

Colonel Lull: As I understand it, the local draft board has the power subject to appeal. Instructions are issued to guide them, but the local board should be the selecting board to determine who is needed in the community and who should go.

Question: How many men are you accepting over 45?

Colonel Lull: Very few. I cannot give you the definite number.

Question: What is the status of a man under 45 who is designated as essential for teaching in a medical school?

Colonel Lull: If he is designated that way, of course he is not allowed a commission. However, if a man is an American citizen and applies for a commission, the Army will not turn him down because he is so designated. But the Army would rather have him get the medical school, or the hospital, to arrange to release him from the essential list. He can talk it over with them and decide whether or not he is essential. The Army does not want the burden of a man being pulled off the essential list thrown on it. We would like to get him into the Army, if the authorities are willing to say he is no longer essential to the institution.

Question: Is he subject to draft?

Colonel Lull: Yes.

Question: What is the present status of amenable disability?

Colonel Lull: You mean such as hernia?

Question: Yes, things that are curable.

Colonel Lull: Of course, I hesitate to give a definite answer on that. There are certain circumstances under which a man is taken for limited service. He is taken with a small hernia without having it reduced. When it is reduced he is required to wait four months, I think. I am not sure as I do not handle that. Then he takes another physical examination and if he is all right he is accepted for full service.

Question: What is the official status of the last questionnaire sent out by Procurement and Assignment?

Colonel Lull: It is official, and every man should fill it out, whether he is in the service or out. It is for their record and should be filled out. The question has been asked: What will happen to the man who does not fill it out? I do not think anything will happen, but he is just foolish if he does not. I do not see what good it will do not to fill it out.

Question: Is there any chance for a man in limited service with a waiver of existing disability?

Colonel Lull: Limited service usually means that a man is placed in an institution such as a hospital. Men are accepted for limited service who

have physical defects which are not sufficient to warrant their being wholly turned down. They therefore are doing service in the field. As a matter of fact, a great many hospitals will be manned by limited service officers.

NATURE OF ARTERIAL HYPERTENSION

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Arterial hypertension is now the leading cause of death, outstripping by far even cancer. So prevalent has been the belief that it is merely a phenomenon of aging and that it is a necessary compensatory reaction to insure adequate flow of blood through arteriosclerotic vessels, that treatment based on understanding of its physiology has seldom been attempted. In short, physicians have been misled into that most abhorrent of doctrines, acceptance of what was believed inevitable.

Hypertension is indeed a clinical sign and not a single disease entity. It is either caused by, or associated with, at least fifty-nine morbid states.[1] Many of these may be recognized and cured when proper treatment is instituted. Yet most hypertensive patients suffer from the essential or malignant variety and neither the etiology nor treatment are known with certainty. While there is no certainty, there is at least a great deal that is known. In what I have to say it will be recognized that largely one point of view is reported and, for the most part, the work of only one group of investigators concerned with this problem. In it are carried all the enthusiasms and biases inherent in single groups and, by the same token, the advantages of a more unified concept of hypertensive diseases.

An outline will be presented leaving the details to be filled in from the literature[2, 3, 4, 5, 6] as interests dictate.

MECHANISM

The study of hypertension has been intensified greatly and broadened since the introduction by Goldblatt of a satisfactory method of producing it in animals. This has been extended by use of cellophane or silk to produce a perinephric scar which, by its slight constriction of the parenchyma of the kidney, results in hypertension. The method has proved very practical in dogs, rats and rabbits. The principle concerned should call the clinician's attention to the fact that injury to, or compression of, the renal parenchyma causes hypertension just as does compression of the renal arteries. Wilm's tumors, hematomata and others furnish such examples.

Hypertension in both animals and most patients appears to be due to increase in effective peripheral resistance and to augmentation of the force and efficiency of the heart beat. Extensive studies have shown that the nervous system is concerned only secondarily with the genesis of most cases of hypertension, although in some its importance may be much greater than in others. The endocrine system also plays a role which is not usually vital, although in many examples highly significant. In short, the nervous and endocrine systems seem responsible chiefly for maintaining the body in such a state that it can react to the chemical system which, for the present at least, is believed to be chiefly responsible for essential and nephritic hypertension.

The substances, which on the basis of contemporary evidence, seem most likely responsible for arterial hypertension are contained in normal kidneys (renin) and in blood (renin-activator). Renin alone does not cause a rise in arterial pressure but when it is allowed to interact with a pseudoglobulin-like substance in blood called renin-activator, a third substance which is strongly pressor results. This substance has been crystallized. It was named "angiotonin."

Angiotonin exhibits many physiologic properties which suggest that it actually causes arterial hypertension. These properties are:

(1) It elevates pressure without reducing peripheral blood flow significantly. Obviously this is important since hypertensive patients are usually ruddy or at least do not have cold, pale, skin as observed when such pressor substances as adrenalin or pitressin are injected.

(2) Angiotonin, when injected into human beings or dogs, reproduces the intrarenal hemodynamic changes characteristic of hypertension itself. These changes are maintenance of glomerular filtration with reduction of renal blood flow. They appear to result from greater or lesser degree of constriction of the efferent glomerular arteriole. The extent to which blood flow is reduced will, of course, depend on an equilibrium struck between the mean systemic arterial pressure and the resistance to flow of blood in the kidneys. Ischemia may or may not be present. It is not necessary for the occurrence of hypertension.

(3) Angiotonin causes increase in the force and efficiency of the heart beat and some constriction of the coronary vessels in perfused hearts. When injected into human beings, rise in venous pressure, reduction in vital capacity and decreased cardiac output occur. Except for the rise in venous pressure, these results fit well with what might be expected of a substance responsible for hypertension.

(4) Both renin and angiotonin, as well as a third vasoconstrictor substance, are found in the renal venous blood of hypertensive patients and dogs. In the peripheral blood is found a substance which has some of the properties of angiotonin but which in other respects is distinctly different. It appears to originate from renin because when renin is in-

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jected intravenously this vasoconstrictor is found in the peripheral blood.

(5) The pressor action of angiotonin is not abolished by pithing an animal, by injection of cocaine or ergotoxin. Clearly the central nervous system is not necessary for its action although it may influence it greatly.

(6) Angiotonin causes no symptoms when injected into patients other than occasional headaches similar to those occurring commonly in hypertensive patients and consciousness of the increased force of the heart beat.

It is clear that angiotonin has many unique qualities suggesting its participation in the genesis of arterial hypertension, both in animals and in man.

A word might be said at this point about the use of the term "renal ischemia" in connection with the production of experimental hypertension. Actually, there is little or no evidence to show that ischemia is a necessary condition for the production of hypertension. The rate of blood flow in the kidneys is the product of mean arterial pressure and of peripheral resistance. If, with increased resistance, there is a corresponding increase in pressure, no reduction of flow need occur. Now it should be recalled that the initial effect of arterial compression by a clamp is reduction of pulse pressure distal to the constriction, while mean arterial pressure and, therefore, blood flow, remain unchanged. Hypertension in dogs has occurred under such circumstances, suggesting that ischemia of the renal tissue is not a necessary condition for it to cause arterial hypertension.

When isolated kidneys are perfused with blood, no renin or angiotonin is liberated so long as the pulse pressure is normal. But sharp reduction of pulse pressure, or more simply, the conversion of a pulsatile to a continuous flow of blood, leads to abundant liberation of these substances. Ischemia need not occur even though angiotonin causes renal vasoconstriction because at the same time it raises mean systemic arterial pressure.

The reason pulse pressure might be reduced in hypertension is not certain. One immediately thinks of the alterations in the afferent arterioles and the juxtaglomerular apparatus which are so commonly observed in this disease.

INHIBITION

Normal kidneys appear to contain a substance inhibiting the action of the angiotonin vasopressor system which I have just described. How specific this is I do not know. The evidence for the occurring of this inhibitor follows:

(1) Nephrectomy greatly increases the sensitivity of animals to angiotonin. This suggests that a source of some substance which inhibits the action of angiotonin has been removed.

(2) When one kidney of a dog has been wrapped in cellophane or silk or the renal artery constricted, the hypertension which follows can be hastened in its appearance and intensified by removal of its normal fellow. It has been suggested that normal renal tissue destroys pressor substances.

(3) Injection of renin appears to cause the release of a substance inhibiting its action.

(4) If angiotonin is mixed with plasma from a nephrectomized dog and perfused through a rabbit's ear, the same heightened vasoconstrictor action is shown, just as in the intact nephrectomized dog. The "sensitivity" has been transferred and hence must be humoral.

(5) The hypersensitivity to angiotonin in nephrectomized dogs is abolished by large transfusions of normal blood. Normal blood probably contains an inhibitor arising from the kidneys.

(6) Kidney extracts actively destroy angiotonin and this is the basis of one method which was employed for assay.

Extracts of kidneys have been prepared by Grollman, Harrison, Williams and by this Laboratory which seem effective in reducing arterial blood pressure. Their extracts have been given by mouth, and it is one of their important contributions to have demonstrated its effectiveness by this route. Our work has been done exclusively by injecting purified extracts intramuscularly or subcutaneously.

The results of the last two and a half years' study may be briefly summarized as follows:

The arterial pressure of hypertensive dogs and rats is consistently lowered within from four to ten days when enough potent extract is given. This is from an experience with five hundred or more hypertensive animals. There is marked variation from one animal to another in the amount required to reduce arterial pressure just as in patients. If extract is discontinued, the blood pressure usually, but not always, rises to its initial level.

The malignant syndrome in animals is usually overcome readily by treatment. Disappearance of ocular hemorrhages, detachment of the retina and hemorrhages in the gut are particularly striking.

To date thirty-six patients have been treated of which twenty-four suffered from malignant hypertension and twelve from essential hypertension. Five of the patients with the malignant syndrome are now dead. No attempt has been made to employ the best extract of the Laboratory continuously in all patients. The fact must be faced that this is a clinic for experimental investigation. Extracts prepared by many different processes have, therefore, been used. Some have been poor and some good. As investigators one cannot afford always to use what is thought to be the best extracts.

The results show, to my mind, that kidney extract can beyond doubt lower arterial pressure, especially the diastolic, in patients with essential or malignant hypertension. The lowering of pressure is accompanied by betterment in the clinical

status of the patient. Regression, and in most cases disappearance, of the retinal changes characteristic of malignant hypertension occurs early in the course of treatment.

Evidence has been obtained that extract causes relaxation of the efferent arteriole in the kidneys with rise in renal blood flow. This was interpreted as beneficial and contributing to the evidence that the inhibitor is, in fact, striking at the nub of the mechanism of hypertension.

It is of interest that when the blood pressure is reduced, the output of the heart is increased. Most hypertensive patients have a normal or reduced cardiac output.

These good effects are accompanied from time to time in some patients by mild to severe systemic reactions to extract. Animals have not exhibited these reactions, and some of the patients also do not exhibit them, but a few are extremely sensitive and it has been necessary to prepare extracts from sheep rather than the usual pig kidney. Some success has been achieved by desensitizing such patients. It is my belief that the reactions are caused by protein impurities and that as the extracts become more purified, reactions will become less severe. Indeed, in the last ten months, they have become less severe and much less common.

I would not like to give the impression that a therapeutic agent for hypertension is already at hand. No method suitable for large scale production of extract is as yet available. Since a continuous supply is necessary, it is clear why it is inadvisable to start treatment until this is an accomplished fact.

Adequate evidence suggests that the problem is a valid one and should recommend itself to those who would approach it as one for investigation. In the last analysis a treatment can be established only after its trial by the serious practitioners of medicine and it must be our goal to make it ready for them.

OTHER MEASURES IN THE TREATMENT OF HYPERTENSION

The opinions and convictions which have been drawn from a continuous study of a large group of hypertensive patients over the last twelve years may be of interest.

Potassium thiocyanate has been employed in several hundred patients, keeping the level in the blood at from 8 to 14 mg. per 100 cc. Roughly, one half of the patients exhibit definite, greater than 20 mm. Hg., fall in arterial pressure. If headache has been present, it usually is relieved. Indeed, relief of headache may occur without fall in blood pressure. Occasionally with the fall in pressure improvement occurs in the heart as indicated by slight reduction in size and reversion to upright of inverted T waves in leads 1 and 2. In my opinion thiocyanate has a definite place in the management of hypertensive patients. When it should be used during the course of the disease is uncertain. It seems wise to postpone its use until the disease is established or until headaches become a distressing factor.

Often one is asked to prescribe treatment for early hypertensive patients and for those without symptoms. Aside from careful regulation of their lives, I have found the following mixture of some use. Perhaps it only satisfies the patient's desire to take something with conviction. If this is so, it fills the need admirably.

Syrup hydriotic acid	0.48
Sodium bromide	16.0
Chloral hydrate	32.0
Mm. Acacia	130.0
Syr. Aurantia	160.0
Aq. dist. q. s. ad	240.0

The patient is advised to take a teaspoonful once a day and more if he feels nervous and upset. There are, of course, many adjuvants to the treatment of hypertension and their intelligent use often spells the difference between comfort and great discomfort for the patient. But this is not the place for a discussion of these.

It has seemed difficult for the medical profession to make up its mind about the surgical treatment of hypertension without undue emotion. This has in no small measure been due to the fact that the operations are not as satisfactory as claimed by a few and nothing like as bad as claimed by others.

Dr. George Heuer and I started a study of this question in 1933. These results have been documented carefully and from these data our opinions are drawn. This documentation leaves others free to inquire into the validity of these opinions. Briefly, we believe that the operation must not be so extensive as to cause a large operative mortality. We are not convinced that there is any single method for the selection of patients suitable for operation. When our work was first begun, no selection whatever was used and in this way we showed to our satisfaction that often patients with the malignant syndrome exhibited indubitable signs of reversal of the morbid process in the blood vessels with probable prolongation of their life span. Regression of the eyeground changes occurs spontaneously but, in my opinion, this is a great rarity. This is excepting those patients who have had specific toxemia of pregnancy, in which it is common. We observed regression of eyeground changes in a sufficient number of patients with malignant hypertension following operation to associate the two. These results seemed to be received with skepticism. Subsequently, sufficient evidence has accumulated to leave little doubt about the profound effect of some of these operations on even such morbid changes as observed in the eyegrounds.

Most sympathectomies must be regarded as palliative rather than curative. Occasional patients have been seen in whom the blood pressure has

remained within the usual normal limits for a year or more. This should not, however, be anticipated as the usual. If the patient can be given from three to six years with lowered blood pressure and comfort, I am convinced that the span of life will be increased and that the treatment will have been justified amply.

I believe that the Smithwick procedure is the one of choice at the present time. The revised Adson operation seems to be satisfactory as well. I have had less personal experience with it.

Let me leave the subject with a word about the mechanism by which the good results are achieved. Whatever the real mechanism, it is not an increase in blood flow to the kidneys. It is curious that many of the papers dealing with the surgical treatment of hypertension state categorically that increase in blood flow occurs though not a shred of evidence has been produced to show this to be so. Apparently, the truth of the matter is that as measured by inulin and diodrast clearances no change occurred[7] and even the ability to concentrate urine does not change.[8] As I pointed out, denervation of the kidneys does not cause any obvious alteration in their functional capacity. They are organs with extraordinary autonomy.

More than ever an exacting analysis of the nature of the disease in each patient is vital before therapy can be rational.

Lilly Laboratory for Clinical Research.

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ALWAYS USE MILD TINCTURE OF IODINE

The strong (7 per cent) tincture of iodine never should be applied to a wound, according to an announcement by E. Fullerton Cook, Phar.D., Philadelphia, chairman of the Committee of Revision of the Pharmacopeia of the United States of America, *The Journal of the American Medical Association* reports in its July 18 issue. The strong tincture evaporates quickly, leaving crystals of free idodine in the wound, which injure the tissues and prevent healing.

According to Dr. Cook, *The Journal* says, "pharmacists should always sell the U. S. P. Mild Tincture of Iodine for first aid, not the strong tincture of iodine; neither should they prepare the mild tincture by diluting the strong tincture, for then it will contain potassium iodide instead of sodium iodide, and the alcohol percentage will not be correct. Sodium salts are much better for application to a wound than are potassium salts."

GASTRIC ULCER

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Reports from England indicate that since the war the incidence of peptic ulcer has increased appreciably. Stewart and Winser[1] studied the incidence of perforated peptic ulcer from 1937 to 1940, inclusive, and during the months of September and October, 1940, when bombing air raids on London were at their height. The increase in incidence of perforated peptic ulcer during September 1940 was more than four times the mean standard deviation for the entire group and, during October 1940, considerably more than twice the standard deviation. They called attention to the increase in perforated peptic ulcer reported by Hamperl[2] in Russia who found that perforations became ten times more common during a famine period. The peak incidence of perforation of gastric ulcer, according to Stewart and Winser, was among patients aged from 50 to 60 years and they contrasted this with the peak in the series from other countries in other than the war years which was between the ages of 20 and 40 years.

Several interesting studies on the effects of duodenal ulcer and gastric ulcer on the soldiers and sailors of the British Forces have been reported. Brockbank,[3] in studying the record of 931 consecutive cases of dyspepsia among soldiers admitted to a military hospital during the first eighteen months of the war, found that 8.5 per cent of all the admissions were for patients who had dyspepsia. Approximately half of those who had dyspepsia were considered to have peptic ulcer; of these 71.4 per cent had duodenal ulcer, 13.3 per cent gastric ulcer and 15.3 per cent pyloric ulcer. Most of these patients gave a history of symptoms of many years' duration, and of the greatest significance is the fact that during the period of eighteen months 90 per cent of the soldiers who had proved ulcers were discharged from the Army because of the disability resulting from their ulcer. Lieutenant Colonel Smellie[4] (M.D.) in a paper on gastric disorders in the British Army stated: "Whenever a diagnosis of ulcer has been established the soldier should be invalided from the Army and returned to civilian life in the shortest possible time. Only then can he have the domiciliary treatment with rest, diet and tranquillity of mind which is impossible in a military environment." Brockbank concluded that the war has revealed the commonness of peptic ulcer and gastritis in the civilian population which was unsuspected before the war began. Because of this disabling factor in such a high percentage of cases he reasoned that it was vitally necessary that the cause of the great increase in peptic ulcer since the last war should be determined.

Experience has shown that in the evolution of

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treatment, cycles occur. This phenomenon may be due to the changing incidence or severity of the disease. Of great influence, of course, are the results which follow different methods of treatment. Generally speaking, response to conservative methods of treatment is more likely to occur when economic and social changes have improved the general health of the community. Under such circumstances too, routine methods of therapy may produce an increasing incidence of benefit or cure which increases further when improved methods of therapy are developed and instituted.

These remarks apply particularly well to the treatment of gastric ulcer. As a result of a better understanding of this lesion and its earlier recognition, while the lesion is still small and without the complicating features of hemorrhage, perforation and obstruction, relief of symptoms and healing of the ulcer have resulted from a medical regimen in more cases recently than many years ago. The only objection to a medical regimen in all such cases is that in some of them the lesion, instead of being a small gastric ulcer, is in reality an ulcerating carcinoma. In many such cases roentgenologic or gastroscopic examinations will not assist in the differential diagnosis. It has been said that a trial course of medical treatment serves as a diagnostic aid for, if the patient is relieved of symptoms, if roentgenographic examination demonstrates that the ulcer has disappeared, and if blood disappears from the stools, then the lesion is benign. Clinical experience, however, has demonstrated that in some cases of malignant gastric ulceration these criteria may seem to be satisfied but that the lesion does not heal; it only seems to do so for, as Schindler[5] has shown, the carcinomatous process may extend from the margin of the ulcer into the crater and obliterate it.

The incidence of malignant changes in gastric ulcers has been stated to be from 10 to 20 per cent. Walton[6] said that the figures of Stewart[7] now are generally accepted. He concluded that in 9.5 per cent of cases chronic ulcer becomes carcinomatous and that carcinoma originates in a chronic ulcer in 17 per cent. Katsch,[8] however, reported an incidence of 20 per cent. Finsterer[9] found a slightly higher incidence as in 141 of his 532 cases of resection for gastric ulcer the ulcer was carcinomatous.

The possibility of healing a large gastric ulcer with a crater 1.5 cm. or more in diameter by other than surgical methods should be looked on with skepticism for all such ulcers have a tendency to perforate. Patients who have such lesions usually have had clinical evidence of perforation of the ulcer either to the gastrohepatic omentum or to the pancreas, and many of them have had hemorrhages. When such lesions occur, surgical removal affords the best chance of permanent cure and does it in a reasonably short time. This statement is true regardless of the age of the patient if his condition is otherwise satisfactory. Furthermore, surgical removal relieves the menace of fatal hemorrhage from the lesion or of an acute perforation which may require an emergency procedure for its closure. Of great importance is the removal of a lesion which may be malignant or may become so.

In the experience of the Mayo Clinic the large gastric ulcers are most frequently present along the lesser curvature of the stomach or slightly posterior to it. Clagett and I[10, 11] found that approximately 70 per cent of the ulcers were at or above the incisura angularis, 15 per cent were on the posterior wall and 1.5 per cent were on the greater curvature. The remainder were below the incisura angularis.

In several of the cases at the clinic the ulcer appeared, on roentgenologic examination, to be located very high on the lesser curvature and, for this reason, it was thought that operative removal would be difficult; it was found at operation, however, that perforation of the lesion to the capsule of the pancreas had given an erroneous idea of the amount of the stomach between the ulcer and the esophagus. In these cases there was actually much more uninvolved stomach than the roentgenogram indicated. On other occasions the early division of the gastrohepatic omentum at a high level assisted in mobilizing the upper part of the stomach so that unusually high lesions could be removed without too great difficulty. Two observations led me to study a series of patients operated on for benign and malignant lesions situated midway between the incisura angularis and the esophagus or higher. These were as follows: (1) recognition of the fact that the roentgenologic appearance of a gastric ulcer can be so misinterpreted that necessary surgical procedures may be postponed, and (2) a general impression that, although removal of a gastric ulcer is made more difficult when it is situated above the incisura angularis, the mortality rate following this operation is not increased appreciably.

I have referred to the incidence of these high ulcers because in many cases I have seen such lesions made the excuse for a course of medical treatment, even though the lesion was large and had been complicated by hemorrhage. The reason for employing a medical regimen was that the lesion probably was too high to be removed safely. The fallacy of this opinion is borne out not only by the fact that the lesions appear roentgenographically to be higher than they really are but also by the fact that in a group of cases in which such lesions were removed surgically, the operative mortality was found to be only slightly higher than that for similar operation for gastric ulcer situated lower on the lesser curvature or the body of the stomach.

Several satisfactory procedures can be employed in the surgical treatment of gastric ulcer. The procedure of choice is partial gastrectomy with removal of the lesion. The advantages of this procedure are the removal of the lesion with its possible hemorrhage, perforation or malignant degenera-

tion, riddance of associated pylorospasm and induction of a high incidence of relative achlorhydria with almost total absence of gastrojejunal ulceration. The Polya type of end to side anastomosis posterior to the colon is utilized most frequently. If the lesion should prove, on microscopic examination, to be malignant, its removal by partial gastrectomy gives the patient the best chance of cure for this procedure removes the lymph nodes in the involved portion of the gastric wall and in the adjacent gastrocolic and gastrohepatic omentum which might harbor malignant cells that have extended from the original lesion.

Although the operation of partial gastrectomy for gastric ulcer gives almost uniformly good results without recurrence of ulceration, when partial gastrectomy cannot be utilized safely on account of the unfavorable general condition of the patient or the nature of the lesion, surprisingly good results may be obtained by less radical measures such as excision of the ulcer and gastroenterostomy.

The risk of partial gastrectomy for gastric ulcer should not exceed a maximum of 5 per cent, and it is possible to operate on a large series of patients who have gastric ulcer by this method with a mortality rate of considerably less than 5 per cent.

In the last three or four years operations have been performed as the best treatment in from approximately 50 to 67 per cent of cases in which the diagnosis of gastric ulcer has been made at the clinic on clinical and roentgenologic examination. During the same period operations were performed in only from 15 to 18 per cent of the cases of duodenal ulcer. I am mentioning this contrast in the management of the benign ulcerating lesions of the stomach and duodenum because I think that in the past these lesions have been regarded as similar in type for they usually produced a similar set of symptoms. These symptoms have been characterized as those of an ulcer type of dyspepsia and hence the two lesions were given the inclusive name of "peptic ulcer." It is my hope that this term, "peptic ulcer," will soon disappear and in its place will appear the descriptive term of either gastric or duodenal ulcer depending on the site of the lesion. Whereas in Central Europe some years ago it was common to see the two lesions occurring simultaneously, such has not been the case in my experience in this country for, although a small group of patients have a combination of both gastric and duodenal ulcer, the majority of the patients are either in one group or the other.

Time does not permit an elaborate discussion of the pathologic and morphologic differences between the two lesions except to say that duodenal ulcers never are and never become malignant whereas gastric ulcers may be malignant and that the response of gastric ulcer to surgical treatment, when properly performed procedures are carried out, gives rise to practically perfect results in all cases. This is not true in the treatment of duodenal ulcer even when similar surgical methods are employed for in a definite percentage, 2 per cent in my experience, of the cases of duodenal ulcer in which partial gastrectomy is employed, recurring ulceration will develop. This, I believe, will be the experience of most surgeons. I should like to call attention to the fact that the production of relative achlorhydria is one of the purposes of partial gastrectomy for either gastric or duodenal ulcer. In addition, by removing part of the stomach, the total quantity of gastric secretion is diminished. These two factors, I believe, are the most important ones in the surgical management of gastric and duodenal ulcer. It must not be assumed from this that in all cases in which a relative achlorhydria is not obtained after operations for gastric or duodenal ulcer a recurring ulcer will develop but, certain it is, that with the reduction in the amount of gastric secretion and the reduction in the concentration of free hydrochloric acid to that of a relative achlorhydria the possibility of a gastric secretion producing a recurring ulcer is greatly diminished.

SUMMARY AND COMMENT

Problems associated with gastric ulcer arise to a large extent from the uncertainty as to whether the ulcer is benign or malignant. Roentgenologists estimate that in from 10 to 20 per cent of cases it is impossible for them to distinguish between a benign gastric ulcer and a malignant ulcerating lesion of the stomach and experience has shown that 10 per cent of patients operated on for carcinoma of the stomach have had a roentgenographic diagnosis of gastric ulcer.

The clinical symptoms associated with malignant ulcerating lesions of the stomach are similar to those of benign gastric ulcer in 33 per cent of the cases and an "effective" response to a medical regimen has been obtained after the institution of nonsurgical treatment in malignant gastric ulcerating lesions before it was recognized that the lesions were malignant. Gastroscopic examination, supplementing fluoroscopic and roentgenographic examinations of the stomach, has been of assistance in differentiating between some benign and malignant gastric ulcers as well as in determining the effect of nonsurgical treatment on the progress of such lesions.

A definite responsibility exists in calling any ulcerating lesion of the stomach benign when it persists or recurs under nonsurgical treatment. This is especially true of patients who have low gastric acids and of patients beyond middle age.

In my experience, few large chronic gastric ulcers will heal under medical regimen. Recurrence is frequent and the period of disability during the course of treatment has been expensive not only from the standpoint of the reduction in productive activities but also in the expenses entailed for the treatment. If chronic gastric ulcers were considered to be surgical lesions and fewer patients of this type subjected to prolonged periods of medical

treatment but partial gastrectomy was performed, the risk of overlooking an early carcinoma of the stomach would be prevented in a definite group of cases. In addition, an early return to full working capacity on a normal diet can be expected to follow properly chosen and executed surgical operations for the removal of the ulcer. In the hands of trained surgeons the risk of such surgical procedures usually does not exceed 3 per cent.

The importance of the problem of gastric and duodenal ulceration is evidenced by the increasing incidence of such lesions in England since the war began and the increase in the percentage of acute perforations which have occurred.

The Mayo Clinic.

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DYSENTERY CARRIERS

Since it is only slightly absorbed into the blood stream, succinylsulfathiazole, a sulfonamide compound, is much less likely to produce severe toxic or poisonous reactions than sulfaguanidine in the treatment of dysentery carriers, William M. M. Kirby, M.D., and Lowell A. Rantz, M.D., San Francisco, report in *The Journal of the American Medical Association* for June 20. They found succinylsulfathiazole to be as effective in treating dysentery carriers as sulfaguanidine and as ineffective in treating typhoid carriers.

WARN AGAINST THE USE OF SULFATHIAZOLE FOR INFECTIONS WITHIN THE SKULL

Their findings in experimental investigations of the use of the sulfonamide drugs for intracranial infections constitute "a clear warning against the intracranial use of sulfathiazole," Cobb Pilcher, M.D.; Ralph Angelucci, M.D., and William F. Meacham, M.D., Nashville, Tenn., report in the July 18 issue of *The Journal of the American Medical Association.*

The development of convulsions in a very high percentage of their investigations following the implantation of sulfathiazole, the three physicians say, "prompts this preliminary report, as a warning against the clinical use of this drug in this manner. . . . Sulfanilamide and sulfadiazine do not appear to have the same irritating effects on the cerebral cortex, but until microscopic studies are completed no conclusion can be drawn in this regard."

SOME MEDICAL EMERGENCIES

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There are several types of emergency situations that may arise in any of the various groups of medical conditions. Among the most dramatic and perhaps the most serious presenting symptoms that require immediate analysis are syncope and coma. Loss of consciousness, even when transient and certainly when persistent, is not only a fear inspiring complex but may also create a critical situation. An attack of syncope is therefore a matter of serious moment, not only to the afflicted individual himself but also to those about him. Syncope is of the greatest significance in an individual who is entrusted with a responsible position in which sudden incapacitation jeopardizes the lives of others.

Surveys of series of cases of this sort should be made from time to time in emergency clinics in large city hospitals in order to make available statistical data. Upon these one may base an opinion as to the frequency of the various causes of unconsciousness. The causes of such critical and dangerous situations in which life sometimes hangs in the balance should be reviewed frequently so as to keep physicians on the alert and ready to care properly for these medical emergencies.

In 1931 I made a study of the admissions of comatose individuals who were brought into the emergency room of Charity Hospital in New Orleans during the previous five years. Five hundred cases were found acceptable and a gross analysis of the material is shown in Table 1. It is to be remembered that these data were collected in the deep south, in a metropolitan area, where sun or heat stroke are not often encountered. A similar study in Kansas City or St. Louis would certainly show numerous instances of such conditions. On the other hand, malignant estivo-autumnal malaria of the cerebral type is rarely encountered in the north but is occasionally recognized as a cause of coma in southern sea ports. Trauma is the more common cause of unconsciousness in war and in the driving high tension industrial centers in the more temperate climate than it is in the subtropical regions. Geographic, climatic and occupational factors

Table 1. *Analysis of 500 Cases of Unconsciousness*

1. Trauma: cerebral concussion, contusion with or without skull fracture	167
2. Cardiovascular disease or disorders	178
Cerebral hemorrhage or thrombosis	123
Cerebral angiospasm and cardinal disorders	55
3. Acidosis (diabetes mellitus)	52
4. Uremia (eclampsia)	30
5. Meningitis: meningococci, tubercle E-A, malaria	21
6. Pneumonia: pneumococcus	15
7. Poisoning: alcohol, dope, barbiturate, lead	18
8. Organic brain disease: paresis, tumor	8
9. Epilepsy	7
10. Undetermined	4

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therefore must also be kept in mind in the analysis of a given case of coma.

The survey made in New Orleans shows the most common conditions that are to be suspected in a comatose patient in the South. The lines of investigation that may prove to be the most promising are thus indicated. It is of special interest to note that cardiovascular disease and circulatory conditions, if apoplexy is included, together outrank trauma as the leading causes of unconsciousness. Cardiovascular disorders play a most important role among the medical conditions pertaining to syncope and coma. There are, however, some common neurologic and medical conditions that are to be taken into consideration in the differential diagnosis of coma states.

THE CLINICAL PICTURE

The clinical picture usually opens with dramatic suddenness and the patient is unconscious and unable to give a history. In a fair proportion of cases, however, the onset may be more insidious and premonitory symptoms may be recorded. The circumstances surrounding, or immediately preceding the attack, may be remembered. Sometimes giddiness, vertigo, weakness, visual disturbances, unsteadiness and restlessness have been experienced and remembered. Drowsiness, confused speech and yawning, nausea and vomiting have been noted. Sometimes the patient complains of premonitory headache, loss of memory, inability to concentrate, paresthesia, aphasia and paralysis just preceding the loss of consciousness, convulsions and coma. There usually have been no rotary sensation or roaring in the ears at the time that the black spots appeared before the eyes.

The physical signs presented by the patient at the time, on inspection, palpation, percussion and auscultation are significant. The patient may be florid and flushed, blowing one cheek, and drooling saliva as evidence of facial palsy or he may be pallid with drawn features and cold perspiration and cyanosis. The pupils usually are dilated, equal, symmetrical and react quickly to light or they may be fixed, irregular, Argyll Robertson in type. There may be conjugate deviation which can be elicited by forcefully moving the head to one side. Ophthalmoscopic examination of the retinal vessels may show silver wire constriction and local spasm, irregularity of the lumen and broadening of the white streak and the tortuosity of arteriolar sclerosis. Hemorrhages and exudate should be looked for as they are significant in the differential diagnosis.

The status of the patient in syncope occasionally may be stationary but it is usually progressive in one direction or another. Pallor, cyanosis, decreased response to stimuli and collapse are serious developments. Slow, deep sighing, regular or irregular respiration of the Kussmaul or Cheyne-Stokes type are common. The pulse may be impalpable, slow or very rapid and the heart beat likewise may be absent, slow or rapid and the rhythm may be regular or irregular. The blood pressure may be low, alternating or rapidly mounting as in cerebral arterial disease. Clonic movements of the face, of the extremities and of the trunk constitute convulsive syncope.

THE DIAGNOSTIC APPROACH

The study of any patient in coma or recovering from a syncopal seizure consists in (1) a quick general survey followed by (2) cardiovascular and (3) neurologic examinations.

1. *General Survey.*—The patient's color should be noted with particular reference as to whether there is a rapidly increasing pallor or flushing or cyanosis or beads of perspiration about the forehead. A search should be made for evidences of trauma, scalp lacerations, bruises, depressions or fractures of the skull and attempts should be made to determine whether the trauma was administered before the faint or after the patient collapsed. Burns on the lips or mucous membranes or a lead line on the gums may give the clue to the cause of a coma.

Odors such as the aroma of acetone or ammonia, alcoholic beverages, paraldehyde, phenol or other poison should be investigated. If there is suspicion of any odor the gastric content should be removed and examined.

The character of the respiration should be noted as to whether slow, deep, sighing or acidotic Kussmaul, or Cheyne-Stokes' or Biot's irregular breathing may be present.

2. *The Cardiovascular Examination.*—In comatose patients signs of great significance are found most often in the study of the heart action and blood pressure. A disturbed cardiac mechanism may result in a rapid or slow, regular or irregular heart rhythm or a momentary total absence of the heart beat. Auscultation may reveal the presence of murmurs of an acute or chronic valvulitis. The blood pressure, in instances of cerebral vascular accident, may be high or may be alternating but often temporary or permanent hypotension is found. In patients with irregular or unusual heart action, electrocardiographic studies should be made if possible after emergency therapeutic indications have been met.

3. *Neurologic Study.*—The eyelid reflex of defense closure should be tried on each side and in various quadrants of the visual field. The pupils should be examined for size, equality and light reaction. Conjugate deviation of the eyes to the opposite side on forced moving of the head indicates oculomotor paralysis. Supra-orbital pressure normally elicits equal facial muscle response, the lower eyelid moving upward. Examination as to whether there is a loss of conjunctival or corneal reflexes should be carried out as well as an opthalmoscopic study of the ocular fundi for angiospastic

retinal arteries or sclerosis. The disks should be examined for papilledema and the retinae for hemorrhages and exudate.

A general clamminess of the skin may be noted in shock. Frothing at the mouth and biting of the tongue are common in epilepsy. The blowing out of one cheek and the drooling of saliva indicate facial paralysis. By raising and allowing to fall each of the extremities, the tonus or flaccidity of the paralyzed side can be made out. In a severe state of collapse the flaccidity is general and sphincter control may be lost, later rigidity develops and general hypertonic postures may be assumed.

The superficial abdominal and cremasteric and the deep reflexes may be absent, exaggerated, symmetrical or unequal. The tonus reflex of the neck, the Brudzinski and Kernig's signs may be present. The involuntary reflex thumb extension and opposition on finger flexion (Mayer-Stiefler) normally present persists in hysteria but disappears in cerebral paralysis and epilepsy. In the later two the Babinski appears while the Achilles tendon, pupillary and corneal reflexes may not be elicited.

COMA OF SOME GENERAL MEDICAL CONDITIONS

Some general medical diseases may first come under observation in coma. Acidosis, particularly of diabetes mellitus, is a common general cause of the comatose state. Usually the patient shows a deep Kussmaul breathing and there is a fruity odor to the breath that usually is considered to be the result of exhalation of acetone bodies. The eyeballs are soft and the pupils are moderately dilated. The urine usually shows a reaction with ferric chloride or to the nitroprusside test, for Beta-oxybuteric or diacetic acid or acetone. Sugar is usually present in the urine but it may be absent. The blood pressure is usually low but in elderly diabetic patients it may be elevated. There is no rigidity of the neck and no paralyses are present.

Blood should be taken for determination of the CO_2 combining power and blood sugar and the nonprotein nitrogen level if facilities are available for these microchemical analyses. Extreme hypoglycemia may be the rare cause of coma and should be ruled out as soon as possible before insulin injections should be given. Insulin in an adequate amount, at least 100 units of the old insulin, should be injected in the coma case with hyperglycemia or glycosuria. The blood sugar determination is highly desirable for differentiation, particularly when the acetone bodies are not found in abundance.

Uremia is to be suspected in the comatose patient when there is a urinous odor to the breath, unusual dryness to the skin and elevation of the blood pressure, with or without Cheyne-Stokes' breathing. There is usually an acidosis present because of the disturbance in the acid-base equilibrium and increase in the depth of the inspiration. The heart is usually enlarged, the eyegrounds usually show much arterial disease, sometimes some hemorrhages and exudate, pericarditis may develop, the abdomen is usually scaphoid but usually no paralysis is present. Eclampsia is the diagnosis when the patient is a pregnant female with these symptoms. The urine usually contains some albumin but it is not necessarily present in great quantities. Occasionally casts are noted in the sediment. A low specific gravity is quite characteristic. Blood chemical studies will reveal an elevation or the retention of the nitrogenous waste products with elevation of the nonprotein nitrogen, urea, uric acid and creatinine.

If the patient has an ascites and the liver cannot be felt, one might suspect the state as one of cholemia, the result of hepatic rather than renal insufficiency. In this case the blood and the urine do not show the evidences of renal disease. An increase in the fluid intake, drainage of the biliary tract, colonic irrigations with hypertonic magnesium sulphate solution, magnesium sulphate injections intravenously or an injection of a large volume of glucose solution containing an ampule of Hartman's sodium lactate Ringer's solution will bring the patient out of the comatose state. Apparently abnormal phenolic compounds accumulate during renal and hepatic insufficiency. These must be gotten rid of through the bowels or through the kidneys.

Meningitis as the cause of coma usually is recognized by the presence of a stiff neck and by Kernig's and Brudzinski's signs. Presence of any of these calls for a lumbar puncture and for spinal fluid examination. Microscopic smear study usually will show the pus cells as well as pyogenic cocci but cultures are also desirable and should always be taken. Sodium sulfapyridine should be given intravenously in 2.5 gm. (50 cc. of a 5 per cent solution) every eight hours. Meningococci are of various strains and when present antiserum should be used, preferably a serum that will agglutinate the organisms from the cultures. If tubercle bacilli are present in the fluid in small numbers they may be found drawn together in the pellicle that forms if the fluid stands in the ice chest over night. The direct smear frequently fails to reveal them. Any pyogenic organisms may be etiologic. If lance-shaped diplococci are noted, or if there has been a previous or concomitant pneumonia, pneumococcus grouping and typing should be performed. Sodium sulfonamides and specific serum should both be given intravenously in maximum dosage.

The malignant cerebral type of estivo-autumnal malaria should be suspected if there have been chills and fever and the patient in delirium has indicated such, particularly if the patient comes from a malaria district. Blood smears should be made, stained with the usual Wright's stain and the double small ring forms should be looked for. The crescent forms rarely appear in the peripheral blood stream. Quinine dihydrochloride intrave-

nously slowly in 1 gm. (15 grains) dosage is life-saving in malignant malaria.

Pneumonia caused coma in the presulfanilamide days and it often became so severe and caused such a grade of shock that cerebral anemia occurred. The critical hypotension with collapse is due to the toxic peripheral vascular letdown incident to intense pneumococcus toxemia. The fever was high. The signs usually were present in the lungs. If there is no sputum or pharyngeal exudate from which cultures or smears can be made it is justifiable to puncture the infiltrated lung and get the material for culture and smears. If pneumococci are present in the sputum they should be typed immediately and the specific serum used as well as the new sulfonamide preparations. In a comatose state sodium sulfapyridine or sodium sulfadiazine should probably be given intravenously.

Poisonings of one form of drug or another are most common causes of coma in these days. Alcohol usually is recognized promptly on a patient's breath and in his stomach contents. The same is true of paraldehyde or phenol. In an alcoholic coma the patient usually is flushed. Barbiturates, unfortunately usually give no clue and can be suspected only from the patient's habits. Narcotics usually show the very markedly pin-point pupils, slow respirations and often the evidence of needling. Glucose, 10 per cent in saline, is the therapy of choice and several liters a day may be necessary to sustain life.

Lead poisoning is usually considered a rather chronic state and lead encephalopathy was rather uncommon until the relatively recent introduction of the volatile lead tetraethyl. In the beginning of the manufacture of tetraethyl lead only a few inefficient protective measures were taken and numerous cases of acute lead encephalopathy occurred. Occasional cases crop up in individuals who use as a dry cleaning fluid the leaded gasoline, ignorant of its toxicity. A lead line on the gums and a stippling of the red cells and acute anemia are suggestive but the finding of lead in the urine is most important. The treatment should be directed toward fixing the lead with calcium and eliminating it slowly.

Organic brain disease, epilepsy, paresis or tumor may contribute to sudden attacks of unconsciousness. Epilepsy is suggested by a familial history of attacks, frequent recurrences of convulsive seizures in which the tongue is bitten, the patient frothing at the mouth. A history of antecedent aura and slight petit mal attacks, as well as major convulsive grand mal seizures, are common in epilepsy patients. A cry often precedes the convulsion which may begin in one extremity and become generalized or may immediately present itself as generalized. The head is rotated and drawn backward, the eyes usually are deviated, the pupils are dilated, the mouth is drawn to one side, the hands are clenched with the thumbs often inside the fingers, the fists are flexed on the wrists, the arms are flexed at the elbows and the legs are extended. Respirations often are arrested temporarily by tonic spasm. The initial pallor changes to lividity as clonic spasms follow and the breathing is resumed. Sphincter control usually is lost. The patient can be aroused but prefers to sleep.

Malignant tumor of the brain and other conditions must be considered if the patient is 35 years of age and has just had his first attack, particularly so if the convulsion has started in one extremity (Jacksonian type). In such patients, of course, the complete neurologic examination must receive careful consideration. The ocular fundi, particularly the nerve heads, should be carefully studied by the ophthalmoscopic method for edema. Other localizing methods as electroencephalograms may be helpful in the diagnosis of brain tumor. Radiographic study after the injection of air into the ventricles of the brain is usually depended upon for accurate localization.

Paresis or paretic dementia likewise may present convulsive seizures and unconsciousness and the patient may remain in coma for many days. In paresis the pupils are usually small, irregular and fixed rather than in the dilated state. Stolid, smooth facies and irregular unequal Argyll Robertson pupils, especially with primary optic atrophy, tremulousness of the tongue and any type of deep reflex changes may be considered characteristic of general paralysis of the insane. The blood serology and spinal fluid reactions are of course usually positive. The cerebrospinal fluid in paresis shows an increased number of lymphocytes, plasma cells and globulin and typical high paretic gold Sol curve.

THE CLINICAL ANALYSIS OF THE CARDIOVASCULAR CAUSES OF COMA OR SYNCOPE

Apoplexy or cerebral hemorrhage is perhaps the most common single cause of unconsciousness. Convulsions rarely occur except when a cortical artery is involved. The face is usually flushed, the pulse is slow, full and tense. The blood pressure is increased. The eyeballs are fixed or deviated to the paralyzed side presenting the so-called conjugate deviation. The pupils are contracted and irresponsive to light, the mouth is drawn to one side and paralysis is usually present on the opposite side. The breathing may be of Cheyne-Stokes' type. Hemiparesis may be present, at first flaccid, and the deep reflexes are lessened but within a few days rigidity sets in and they become increased and abnormal plantar reflexes appear. The coma may pass off in a few hours but it often lasts for days. It is rarely of short duration. Hemorrhage into the external capsule may not cause loss of consciousness. Hemorrhage into the ventricle or into the pons results in spasmodic or convulsive movements and the fever runs high. Conjugate deviation in ordinary apoplexy is toward the paralyzed side and changes in the opposite direction with hemorrhage into the ventricle. Con-

jugate deviation may be away from the paralyzed side in the early stages of a pons hemorrhage.

Subarachnoid hemorrhage presents a gradually increasing stupor and coma, rigidity of the neck and headache and vomiting are common. Lumbar puncture usually yields a spinal fluid that is bloody and removal of the bloody fluid usually decreases the pressure and relieves the symptoms. A slight increase in intracranial pressure may develop and produce a papilledema visible on ophthalmoscopic examination of the eyegrounds and abducens palsy is not an uncommon finding. There are no significant reflex changes and no general paralyses.

Cerebral embolism occurs most frequently in patients with acute endocarditis and valvulitis or chronic mitral stenosis but occasionally also after coronary occlusion. Syncope and coma result when the embolus is a large one and convulsions likewise occur when the circulation in the cortex is interrupted. The blood pressure usually is not elevated greatly. There are no changes in the eyegrounds unless a small embolus strikes the central artery of the retina. The finding of disease in the heart, particularly a febrile condition, will make the diagnosis of cerebral embolism most likely.

Cerebral angiospasm occurs usually in hypertensive individuals. During the attack definite changes in the retinal artery may be recorded in the form of retinal artery constriction (silver wire arterioles), irregular and segmental in type. Transient paralyses may occur and clear up over night. Visual disturbances are common and may persist. Edema of the brain is probably present and there may be some evidence of increased intracranial pressure. The systolic and diastolic blood pressures are elevated. There may be some response to amyl nitrite or nitroglycerine or the intravenous use of papaverine.

Hypertensive encepholopathy frequently presents findings quite similar to those of angiospasm, including cerebral edema. Usually headaches and visual disturbances, nausea and vomiting and rising blood pressure levels have preceded the syncopal episode. The ocular funduscopic examination will reveal evidences of vascular disease. The arterioles may be uniformly constricted but usually the lumena are irregular, the white streak is broad, the arterioles are tortuous, there is nicking of the veins where arterioles cross but, most significantly, there are often hemorrhages or exudate in the retinae and edema of the nerve heads with congestion of the veins. This type of fundus is sometimes difficult to differentiate from that of intracranial neoplasm. The peripheral and renal evidences of hypertensive arteriolar diseases direct the careful examiner to the correct diagnosis.

GENERAL CARDIOVASCULAR CONDITIONS PRODUCING SHOCK AND CEREBRAL ANEMIA

The general circulatory disorders with low blood pressure account for relatively few of the attacks of syncope. Nevertheless, the recognition of each disorder in the miscellaneous group of causes of syncopal states is desirable.

Shock hypotension and cerebral anemia sometimes result from such acute vascular accident as pulmonary embolism, dissecting aortic aneurysm, coronary thrombosis, rupture of an aneurysm or of the heart or of an aortic cusp.

Serious mechanism disorders as heart block with ventricular asystole produce the dramatic Adams-Stokes' syndrome of convulsive syncope. Paroxysmal ventricular fibrillation has been recorded in very rare cases that clinically were indistinguishable from Adams-Stokes' attacks. Paroxysmal and atrial flutter or tachycardia, especially the one to one type, and high grade atrial fibrillation occasionally cause hypotension, cerebral anemia and syncope.

Carotid sinus irritability with cardiac stand still may occur in a few instances of aortic stenosis with calcareous disease. Mitral stenosis with a ball valve thrombus or cardiac tamponade of traumatic or hemorrhagic origin, or as a result of acute pericarditis, will account for occasional instances of syncope. These facts indicate the necessity for a general cardiac as well as a general vascular examination in every patient who has a history of faints or fits.

Occasionally excessive carotid sinus irritability in itself with vagatonia accounts for the vagus faints. Cerebral anemia as the result of an ordinary splanchnic faint, although a very common condition, is seen in the emergency room of a general hospital only occasionally. Postural or orthostatic hypotension is an occasional cause of cerebral anemia.

All these disorders may be accompanied by a sharp drop in the systolic blood pressure with concomitant cerebral anemia of such grade as to cause unconsciousness.

DETAILED CONSIDERATION OF THE CARDIAC MECHANISM DERANGEMENTS THAT CAUSE SYNCOPE

Sudden cardiac mechanism derangements, although really not very common causes of syncope,

Table 2. *Study of Cardiovascular Syncope Group*

Local circulatory disturbance	
Cerebral hemorrhage	98
Cerebral thrombosis	23
Encephalopathy hypertensive	8
Cerebral embolism	2
Cerebral angiospasm	2
General circulatory disorders	
Ordinary splanchnic faints	12
Ruptured aortic aneurysm	4
Dissecting aortic aneurysm	1
Hemorrhage, shock	2
Postural hypotension	2
Pulmonary embolism	2
Primary cardiac factors	
Cardiac tamponade, pericarditis	2
Massive coronary thrombosis, shock	1
Rupture of the heart	1
Aortic stenosis calcareous	2
Mitral stenosis ball valve	1
Cardiac mechanism paroxysms	
Carotid sinus attacks, vagus faints	6
Auricular and ventricular tachycardia	2
Flutter or fibrillation	2
Heart block, Adams-Stokes' syndrome	3
Ventricular fibrillation	1

occur with sufficient frequency and at times with such dramatic severity that prompt proper diagnosis and emergency treatment are often necessary to forestall a catastrophe. Inasmuch as many of these physiopathologic causes of cerebral syncope are comparatively benign or innocuous conditions and most of them amenable to simple specific treatment, some remarks on the differentiation and management of the mechanism disturbances may be worth while. Certain clinical characteristics and the usual favorable response to therapeutic procedures of these disorders, even though quite well and generally known, warrant recapitulation from time to time.

VENTRICULAR DISORDERS AND STANDSTILL—ADAMS-STOKES' SYNDROME

Paroxysmal ventricular flutter or fibrillation rarely are recognized clinically as the cause of a syncopal attack but they, especially ventricular fibrillation, are suspected as the cause of sudden collapse and death in electric shock and in rare cases of angina pectoris. Experimentally and electrocardiographically they have been shown to produce a state in which there is no propulsion of blood from the ventricles. The diagnosis may be suggested by the fact that no regular sounds are audible, no pulse is present, sharp vertigo and syncope are present and often convulsions intervene creating a clinical picture that is practically indistinguishable from that of an Adams-Stokes' attack. The interpretation of this rare state can be made only by electrocardiographic studies made during the attacks.

HEART BLOCK

The lesser grades of disturbances of conduction in the A. V. bundle may result in some giddiness, vertigo and some slowing of the pulse and heart rate, which are usually equal. The rhythm may be regular or irregular depending on the type and grade of the block.

The type of heart block that precipitates a cardiac emergency is usually one that is complete and in which the ventricular muscle is not irritable enough to establish a ventricular pacemaker promptly. In other words, there results a temporary asystolic state in which there are no ventricular contractions to propel the blood into the aorta and great arteries to the brain. As a result, the cerebral anemia which occurs produces a sudden vertigo which rapidly passes into syncope and a convulsive state often ensues.

The suspension of ventricular activity may continue for as long as four or five minutes. Some consider possible survival of the patient with resumption of ventricular activity after even eight minutes. At any rate, the moments of ventricular asystole are precious ones and no one is able to state whether or not the ventricle is again going to contract.

TREATMENT OF VENTRICULAR STANDSTILL

In the emergency, rapid powerful blows over the precordium may be of help in the recstablishment of ventricular activity. Intravenous injections of drugs in the peripheral vessels are of little value because the blood mass is not moving. Injection into an engorged jugular with the patient placed in the upright position, may, by gravitation, successfully be carried into the heart. If these procedures yield no response in a few moments, the heroic introduction of two or three minims of adrenalin directly into the heart muscle is justifiable. In order to accomplish this it is usually necessary to penetrate the ventricular cavity and aspirate some blood into the syringe containing from 10 to 15 minims of 1 to 1,000 adrenalin solution and then start withdrawing the needle slowly, injecting as the needle is withdrawn. Large doses are dangerous for they may produce persistent and fatal ventricular fibrillation.

The chief therapy in these conditions seems to be the prophylaxis by keeping the ventricular muscle irritable with ephedrine, paradrene, barium chloride or adrenalin in oil.

PAROXYSMAL ATRIAL FLUTTER OR FIBRILLATION

Syncope is not a frequent symptom of paroxysmal atrial flutter or fibrillation; nevertheless, the conditions are to be considered even though only rarely accompanied by unconsciousness. Vertigo and giddiness are commonly experienced. The paroxysmal flutter may produce a rapid heart rate, as high as 180 beats per minute. Rarely, however, does it go above this level, but a one to one block may replace the usual two to one and a rate of 360 per minute may result. As a diagnostic characteristic, differentiating flutter from the tachycardias, the carotid sinus reflex is usually temporarily effective. Pressure over the right carotid sinus usually temporarily slows the ventricular rate sharply and makes the rhythm slightly irregular. In spite of the persistence of the pressure, however, the rapid regular beat is resumed. The usual flutter rate is 150 or 160 beats per minute which is lower than that of most tachycardias. The usual rhythm is regular or becomes so on exercise but the blood pressure drops, thus producing symptoms similar to but less severe than those of the tachycardias. There may, however, be more myocardial weakness associated with this mechanism disorder.

In paroxysmal atrial fibrillation the symptoms may be quite similar, but usually the irregularity of the heart is felt by the patient and upon examination it usually is found that the heart rhythm is characteristically absolutely irregular and the rate often considerably above 100, while the pulse rate, although irregular, is considerably less due to the fact that many of the ventricular beats and the rapid runs generate insufficient pressure in the

ventricles to open the aortic leaflets and the pulsus deficit results.

These conditions very frequently stop without any medication whatsoever and even in spite of digitalization. Here again, however, quinidine sulphate in 0.3 gm. (5 grains) doses every hour for not more than eight doses may be necessary to halt the disorder as it is the most effective measure. Usually a few doses by mouth are sufficient to reestablish a normal mechanism.

PAROXYSMAL TACHYCARDIAS

The rapid heart action which in the case of paroxysmal tachycardia rises to levels of from 180 to 240 per minute are of such grade as to be in themselves factors in the reduction of the systolic blood pressure, but again the drop in itself is rarely sufficient to cause a cerebral anemia. Occasionally, however, especially in elderly individuals with sclerotic cerebral vascular beds, syncope may result in a paroxysm of tachycardia. Giddiness and dizziness are quite common, as in any cerebral anemia, and a sense of general weakness is complained of during the paroxysm by most of the patients.

The paroxysm consists of a rapid succession of heart beats which have their point of origin outside the usual pacemaker. Usually the ectopic focus is in the auricular or atrial musculature and at times in the junctional tissues, but more seriously in the ventricular wall. The rapid heart action is usually sudden in onset and sudden in offset. There is often no discernible precipitating factor but occasionally an emotional upset or unusual physical strain or a surgical operation, particularly one upon some part of the genito-urinary tract, is likely to precipitate a paroxysm. The paroxysm may last for only a few beats but usually it continues for several minutes, occasionally for hours, days, weeks and even months. It is rare for any paroxysm other than one of junctional origin to last longer than a day.

The clinical differentiation according to the origin cannot be made with certainty except with electrocardiographic studies. The rates are high, usually between 160 and 240, and the rhythm is usually perfectly regular, especially in the atrial type, while in the ventricular tachycardia a variation of from six to eight beats counting from minute to minute is not uncommon and fairly characteristic. The junctional and ventricular types are more serious than the atrial paroxysmal tachycardias. Junctional tachycardias last longer. Ventricular tachycardia is usually associated with serious myocardial damage of the ventricle, a cardiac infarction following coronary thrombosis.

Paroxysmal atrial tachycardia often occurs in psychically unstable individuals. Worry and fear may be a great factor in the aggravation of the condition.

SINUS TACHYCARDIA. VASOSYMPATHETIC FAINTING

Simple sinus tachycardia rarely is the cause of cerebral anemia; it, however, is the common accompaniment of the ordinary splanchnic fainting. The syncope of orthostatic hypotension is usually accompanied by a slow or normal pulse rate and is thus differentiated. The simple tachycardia rarely presents a heart rate of more than 140 and it tends to slow gradually and is sometimes slightly irregular after carotid sinus pressure. The patient may complain of some palpitation and nausea just before the onset and at recovery from the fainting.

In the splanchnic faint with simple tachycardia, the blood pressure drops often to the critical level of 80 or 70 mm. of mercury and remains there even with the patient in the prone position and until recovery begins to take place. Before recovery, even with the head down, the pressure does not go above normal. In the orthostatic hypotensive case, the falling blood pressure occurs only during standing. The drop can be interrupted promptly by assuming the horizontal position. In patients with postural hypotension when the head is lowered the blood pressure characteristically rises to levels above normal, while the pulse rate does not change in most cases.

The treatment of both types in the acute stage is about the same; placing the patient in the horizontal attitude, lowering the head, dashing cool water or giving the patient a drink will usually restore him.

The postural or orthostatic hypotension faint may be helped by an abdominal binder to prevent the drainage of blood into the large venous channels when the patient assumes the upright position. Ephedrine sulphate may be given in increasing doses, $\frac{3}{8}$ to $\frac{3}{4}$ grain, or benzedrine sulphate, $\frac{1}{6}$ to $\frac{1}{3}$ grain doses, may be effective in maintaining blood pressure above the critical level and in preventing the cerebral anemia upon assuming the upright position.

SINUS BRADYCARDIA AND STANDSTILL CAROTID SINUS REFLEX DISTURBANCES

Abnormally active or overactive carotid sinus reflexes fairly frequently are recognized, while an abnormal inactive reflex is much less often diagnosed. The so-called vagotonia or vagus faint or sinus block or sino-auricular standstill, the reflex slowing or momentary suppression of the heart action, are now generally considered under the term "carotid sinus episodes." The heart is usually slow to begin with in the patient subject to carotid sinus attacks and in such a temporary exaggeration of vagus tone produces the sino-auricular standstill and an asystole of the whole heart. The asystolic period usually prolonged to the point of a blood pressure drop to the critical level results in cerebral anemia and transient unconsciousness intervenes.

The diagnosis of the condition depends on elicita-

tion of an abnormally active carotid sinus reflex upon slight or moderate pressure applied at the bifurcation of the right common carotid. In vagotonia this maneuver will result in a slowing of the heart and a prompt and complete suspension of the systole for a brief period. An asystolic period may last as long as thirteen seconds. Pressure on the eyeballs sometimes will reproduce the sinus bradycardia, standstill and syncope.

SUMMARY

The importance of syncope and coma as medical emergencies has been reiterated.

The causes as encountered in a series of 500 consecutive cases of unconsciousness admitted to the emergency service of a large hospital in a metropolitan city in the deep South have been tabulated.

The analysis of the general medical group of causes has been carried out in detail and all the causes have been discussed briefly.

The cardiac mechanism disorders that may be held accountable for the syncope have been touched upon.

The diagnostic criteria of each and the emergency methods of combating the disturbances have been commented upon.

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SAYS INJURIES TO THE HEART BY BLOWS TO CHEST OFTEN ARE OVERLOOKED

Injury to the heart and adjoining structures caused by blows to the chest or to distant parts of the body is often overlooked because of the prevailing idea that the chest wall and the cushion effect of the lungs prevent such injury, Louis H. Sigler, M.D., Brooklyn, declares in *The Journal of the American Medical Association* for July 11. He emphasizes the importance of bearing in mind that such injury to the heart may occur in any bodily injury and that such patients should be given frequent heart examinations.

The types of blow or impact that may result in heart injury in man, he says, include (1) direct blow to the chest, especially if applied to the region over the heart or stomach; (2) compression of the chest between two solid objects; (3) sudden extreme increase in the pressure within the abdomen by external violence; (4) lifting of an extremely heavy object or other severe strain thrown on the body.

"It must be stressed that it is not the latent force but the velocity of travel of the force when it strikes the body which produces the injury," Dr. Sigler declares.

Factors which help increase or diminish the effects of the striking force on the heart, he says, include the flexibility and resilience of the chest cage. In youth the chest is much more resilient than in advancing age, hence a striking force is more apt to damage the heart in a young man than in an old person.

The presence of disease of the arteries of the heart in advanced age is a sensitizing factor for the production of heart disturbances, if not actual damage, by comparatively little force.

"Injury to the heart may occur without any subjective or objective manifestations," Dr. Sigler advises. "This is especially true if the injury is not severe. If carefully followed, however, even the mild grades of injury may show manifestations by which the injury can be recognized."

INDICATIONS FOR THYROIDECTOMY

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The indications for thyroidectomy are embodied in those lesions of the thyroid gland that produce systemic changes as a result of altered glandular physiology or because of mechanical, cosmetic or malignant reasons. The degree of hyperthyroidism has no bearing upon the indications for thyroidectomy. With the present state of knowledge it is a surgical problem. Even mild or moderate cases will not respond satisfactorily to medical management. Only in adequate remission is to be expected and frequent exacerbations occur. A variable degree of inefficiency will persist until adequate steps are taken to restore a metabolic balance by thyroidectomy. Slight emotionalism, nervous instability and the other symptoms of mild hyperthyroidism are as proportionately disabling as those of a more severe character and call for the same consideration and treatment. Neglect or delayed surgery can result only in prolonged invalidism and subsequent serious damage from vital degenerative changes.

Mild hyperthyroidism must be differentiated carefully from other simulating nervous states. These must not be mistaken for hyperthyroidism and the patient subjected to thyroidectomy. If the symptoms are not definitely those of hyperthyroidism, surgery should be deferred until the diagnosis is established. If of thyroid origin, the diagnosis ultimately will become apparent.

The factor in severe hyperthyroidism is not one of surgery but one in which the extent of operation is to be determined. Prior to the advent of Lugol's solution as a preparatory measure in primary hyperthyroidism, many stage procedures were often necessary before the goiter could be removed satisfactorily. Crises were frequent and the operative mortality was appalling. With the introduction of preoperative iodine medication, multiple pole ligations have been eliminated largely, stage operations reduced materially and the mortality rate lessened appreciably. Patients who formerly died from diarrhea and vomiting and in a state of thyroid crisis usually are restored to a metabolic balance and later satisfactorily operated upon.

The action of iodine in hyperthyroidism of short duration results in a rapid and satisfactory abatement of clinical symptoms and a prompt involution of the gland, manifested by a firm hard consistency. The hyperplasia rapidly recedes, colloid reaccumulates, the iodine content is replenished and the vascularity diminishes as involution progresses. A satisfactory response of this type presents at operation a firm grayish colored gland without excessive vascularity and permits of primary bilateral resection.

In hyperthyroidism of long standing, there is a

negative iodine balance in which there is little or no stored iodine in the gland and the body reserve of iodine has been exhausted. There is little response to iodine medication either clinically or by physical evidence of glandular involution until the body reserve has been replenished; and then it is often inadequate and unsatisfactory. Occasionally a state of iodine resistance or an iodine fast condition exists. The gland at operation is found to be red, friable and vascular. The tendency to recurrence, as demonstrated by Cattell, is more pronounced and more extensive resection is required. The pre-iodine procedures of multiple stage operations, as recommended by Jackson, must be employed frequently.

Excessive metabolism carries with it many surgical hazards which can be reduced only by the restoration of a satisfactory metabolic balance and even then safety is often through the procedure of multiple surgery. Age, excessive loss of weight, marked nervousness and emotionalism, profound weakness, extreme tachycardia and evidence of excessive combustion are warning signs against extensive surgical trauma. The first impression of the clinical state before lugolization is the most optimal time to estimate the extent to which surgery can be applied. Even when the involution, both clinically and histologically, is satisfactory, and the metabolic balance seems to be adequately established, the original decision to adopt a stage procedure should not be abandoned. It must be remembered that a patient whose initial hyperthyroidism was severe enough to advise caution may again, from excessive surgical trauma, revert to a state of severe hyperthyroidism and pass into a crisis from which extrication is not possible.

The margin of safety is narrow and only limited surgical assault can be tolerated. It is better to have two or more operations and a successful outcome than to take unnecessary chances and most assuredly an ultimate increased mortality. Surgical judgment should not be diverted by pressure to economize or to escape secondary operation.

Post crisis cases require early hemithyroidectomy as soon as adequate metabolic balance has been restored. Delay may result in a secondary crisis from which the patient may not survive. Nothing of a permanent nature has been done to prevent a recurrence.

Too much dependence is placed upon the metabolic determination as an indication for surgery. This is erroneous and cannot be relied upon. It must be remembered that it is a laboratory test and is subject to mechanical, technical and emotional errors. It is in fact only an undependable record of epithelial activity and is not affected by other thyroid changes. A normal reading may be obtained in many conditions resulting from thyroid pathology. I have found many times a normal or minus metabolic reading in unmistakable clinical manifestations of thyroid origin and prompt recovery has resulted from thyroidectomy. It is a laboratory procedure that must be interpreted and evaluated properly with the clinical aspect of the individual case. A normal or minus metabolism by no means contraindicates thyroidectomy. It therefore must not be depended upon as an indication for thyroidectomy.

Secondary hyperthyroidism presents the problem of hypocombustion superimposed upon the degenerative changes incident to long-standing thyroid pathology in a much older individual. Each is an indication for thyroidectomy, the one requiring preoperative restoration of metabolic balance and the other an analysis of the systemic effects of long standing thyroid disease. The age of the individual, the degree of hyperthyroidism, the nutritional disturbance of the patient and the cardiac capacity must be evaluated to determine the extent to which surgery can be performed primarily. Patients more than 50 years of age and especially those past 60 often cannot safely withstand primary thyroidectomy because of the effects of the long-standing ravages of the disease. Those in which the nutrition has been long impaired or whose recent weight loss has been excessive and in whom auricular fibrillation and cardiac decompensation are persistent should be operated upon conservatively by hemithyroidectomy as a primary procedure.

Apathetic hyperthyroidism, which represents the burnt out or exhaustive type of long-standing hyperthyroidism, has a low margin of safety and little nutritional and cardiac reserve. Conservative surgery in the form of stage operations ultimately restores a nutritional balance, an adequate cardiac compensation and marked general improvement. The metabolic rate is frequently little affected.

Recurrent hyperthyroidism requires secondary operation when definite glandular hypertrophy and clinical manifestion cannot be controlled by iodine, sedatives and irradiation. The absence of a palpable recurrence does not prohibit operation if the clinical manifestations indicate surgery. Glandular hypertrophy will be found well concealed in the thoracic aperture or between the trachea and esophagus. Many recurrences are due to a primary inadequate operation. Either the operation was not sufficiently radical or the pyramidal lobe, the isthmus or portions of the superior poles were left and are the technical errors which influence recurrence.

Long-standing nodular goiter that commonly is spoken of as being nontoxic is distinctly a surgical problem. There are no innocent goiters of long-standing that have advanced to the stage of nodulation from adenomatous development or from old colloid degenerative changes. The by-products of degenerated colloid and epithelium are cardiotoxic and universally result in cardiac irregularities and decompensation. The presence of a long-standing slight tachycardia, an unstable nervous system and a chronic nutritional disturbance usually are entirely overlooked or not attributed to the goiter.

One need only to follow for two decades or more the progressive development of these cases toward an ultimate cardiac death to be convinced of this relationship. Early operation prohibits this eventual termination.

They are surgical lesions because of potential or malignant changes and often mechanical factors. Carcinoma of the thyroid most usually is associated with nodular lesions of long standing, either of the adenomatous type or of the discreet isolated nodule of the fetal type. Lahey reports that 80 per cent of malignant thyroids are associated with these preexisting long-standing nodular lesions. Hertzler emphasizes the relation of fetal adenoma to malignancy. Fetal adenomata in young individuals sometimes are found to be undergoing malignant change.

Nodules along the anterior border of the sternomastoid muscle may be aberrant thyroid tissue which is potentially malignant. Persistent nodules in this area not associated with acute infections in the oral cavity should be explored, excised and sectioned. If malignant, adequate irradiation should follow. Lahey emphasizes the malignant potentiality of aberrant thyroid nodules.

Nodular goitrous masses may obstruct the trachea and produce much deviation, narrowing and angulation, causing an interference with the free interchange of air. Nodular masses may press upon the recurrent laryngeal nerve in the groove between the trachea and esophagus and cause paralysis and voice changes. Nodules in the lower pole follow the line of least resistance in the progress of extension and are guided by respiration and swallowing through the thoracic aperture into the chest. They are prevented from outward extension by muscle attachments and bony surroundings. The surgery is not difficult because the blood supply is from above, being carried down from the superior and inferior thyroid artery as the mass has descended into the chest. The capsule is that of the cervical and mediastinal fascia which also has been pushed downward in the process of descent. Adequate drainage is essential else serum may accumulate in the unobliterated cavity after removal, become infected and result in a mediastinal abscess. The cavity obliterates slowly, heals by granulation, and the drainage therefore must be long.

Large colloid goiters even in young adults may demand surgical procedure because of their grotesque appearance. These goiters sometimes develop to so great a size that they produce not only serious mechanical difficulties but unsightly protruding masses.

Hyperthyroidism in children should be operated upon by conservative measures. Here an exception should be made and mild hyperthyroidism should be treated carefully by medical measures if they are sufficient to prevent the progress of the disease. Only in the progressive and more severe cases have I resorted to surgery. The thyroid gland is more essential in childhood and early adult life than in later periods, and surgery should be withheld in mild cases if possible. When surgery is necessary it should be conservative, removing only one side of the gland at the primary operation. It has been my policy not to do as radical an operation in children as in adults and to do it by stage procedures.

Hyperthyroidism in pregnancy requires mature judgment as to the necessity for operative interference. Mild cases may well be carried to the termination of pregnancy. In only the severe cases without evidence of remission is surgery advisable. Early in pregnancy the progressive or severe cases should be operated upon either by primary thyroidectomy or by stage procedures as the case indicates. In the later months, if possible, the condition should be treated conservatively until after the delivery when operation should be performed. The danger of miscarriage after operation in the early months is small.

Hyperthyroidism associated with diabetes reduces carbohydrate tolerance and increases insulin demand. Removal of this excessive stimulus results in prompt improvement of the diabetic condition with a greater tolerance for carbohydrate and a lessened demand for insulin. It will not cure diabetes. Only the hyperglycemia that is sometimes present in hyperthyroidism is permanently affected. Care must be taken to determine definitely the presence of a true diabetes before prognosis as to cure is made. Hyperthyroidism, like infection, greatly aggravates diabetes and immediate removal is essential.

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TRACHOMA CAN BE TREATED EFFECTIVELY

Acute trachoma, a contagious granular inflammation of the membrane that lines the eyelids and covers the eyeball, can be treated so successfully that less than 1 per cent of the eyes infected will become industrially blind, Harry S. Gradle, M.D., Chicago, declares in *The Journal of the American Medical Association* for July 4 in a report on the visual results obtained in the trachoma clinics of southern Illinois. His report lists the results from treating two groups of patients in stages 1 and 2 of the disease, 328 eyes in one group being treated with sulfanilamide and 493 eyes in the other group being treated by other means.

"From the final visual standpoint," he says, "systemic treatment with sulfanilamide is preferable to purely local treatment because: (a) twice as many eyes show definite improvement in vision and (b) less than half as many eyes show positive losses in vision."

BENZEDRINE SULFATE IN DYSMENORRHEA

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A series of fifty-five young women between the ages of 16 and 20 were given benzedrine sulfate over a period of six months. All of those who participated in the experiment were college women who reported to the Student Health Center for relief from menstrual pain.

A control group of twenty persons received a placebo made of lactose and the results were recorded. The type of pain, amount of dosage and intervals between doses, together with any results or other medication, also were noted.

The tables indicate the plan followed. Amphetamine sulfate (benzedrine sulfate) tablets, 10 mg. each, were used.

CONCLUSIONS

Benzedrine sulfate was given to approximately fifty-five girls, and a placebo made of lactose was given to a control group made up of twenty girls. These experiments were carried on over a period

Table 1. *Benzedrine Sulfate*

Case No.	Type of Pain	Amt. of Dose Tablet	Time of 1st Dose	Time of 2nd Dose	Results	Additional Medication
1	Moderate	½	9:45 a. m.		No cramps after 30 minutes.	None
2	Severe	½	10:20 a. m.	11:30 a. m.	1st partially effective. Relieved 2 hrs. after 2nd.	None
2	Mild	¼	5:20 p. m.		(Cramps had returned) Good; no pain after 20 min.	None
3	Mild	¼	10:10 a. m.		Cramps gone in 15 minutes.	None
4	Moderate	½	11:30 a. m.		Effectual, approx. 1 hour.	None
5	Moderate	½	8:55 a. m.	10:15 a. m.	No results from 1st dose. Relieved 1 hr. after 2nd dose.	Hot water bottle
6	Severe	½	9:05 a. m.	11:15 a. m.	Fair results. Still had moderate pain after 2nd dose.	Hot water bottle
7	Moderate	½	9:05 a. m.		Effectual. Complained of dizziness.	None
8	Moderate	½	8:45 a. m.		Effectual approx. 1½ hrs.	None
9	Moderate	½	2:56 p. m.		Effectual approx. 1 hr.	None
10	Moderate	¼	5:45 p. m.		Effectual approx. 1 hr.	None
11	Severe	½	9:00 p. m.		Effective in ¾ hr.	None
8	Slight	¼	8:50 p. m.		(Cramps had returned.) Effective in ¼ hr.	None
8	Severe	½	8:00 a. m.		(Cramps returned 3rd time.) Effective in 40 min.	None
12	Severe	½	2:00 p. m.	3:00 p. m.	No results from 1st dose. Effective 1 hr. after 2nd dose.	None
13	Severe	½	11:10 a. m.		Effective in 1 hr.	None
14	Severe	½	8:15 a. m.	9:15 a. m.	Effective in approx. 2 hrs.	None
15	Moderate	¼	8:30 a. m.	(Refused)	Effective in approx. 3½ hrs.	None
16	Severe	½	8:40 a. m.	9:45 a. m.	Partly effective, 3 hrs.	Further medication refused
17	Severe	½	9:15 a. m.		Effective in few minutes.	
18	Severe	½	11:00 a. m.		Effective approx. 1 hr.	None
19	Moderate	¼	5:45 p. m.		Effective approx. 1 hr.	None
20	Moderate	½	8:45 a. m.	9:45 a. m.	No relief from 1st dose. 2nd dose effective.	Hot water bottle
21	Severe	½	11:30 a. m.		Effective ½ hr.	None
22	Moderate	¼	10:30 a. m.		Effective approx. 2 hrs.	None
23	Severe	½	9:45 a. m.		Effective 1½ hrs.	None
24	Severe	½	8:20 a. m.	10:30 a. m. (¼ tab.)	Partly effective. Still complained of some cramps.	Hot water bottle
25	Severe	½	9:05 a. m.	10:40 a. m. (¼ tab.)	Effective 20 min. after 1st. Returned mildly. Relieved in 10 min. after 2nd dose.	
26	Severe	½	10:10 a. m.	(Refused)	Partly effective 1 hr. Entirely relieved in 2 hrs.	
27	Severe	½	8:30 a. m.	10:00 a. m.	Still cramped moderately after 2 doses.	Hot water bottle L. sedans
28	Moderate	¼	8:30 a. m.		Effective 1½ hrs.	None
29	Severe	½	9:00 a. m.	10:30 a. m.	1st dose effective but cramps returned. Relieved by noon.	None
30	Severe	½	9:20 a. m.		Apparently effective.	None
31	Severe	½	9:40 a. m.		Effective in 1 hr.	
32	Moderate	¼	9:10 a. m.	10:10 a. m.	Slightly improved after 1st. Effective 1½ hrs. after 2nd. Complained of weakness.	None
33	Severe	½	2:20 p. m.	3:30 p. m. (¼ tab.)	Effective to certain extent. Still complained of moderate pain.	None
34	Mild	¼	4:05 p. m.		Completely relieved in 40 min.	None
35	Severe	½	10:00 a. m.	11:00 a. m.	No relief from either dose (also not relieved by other medication).	L. sedans
36	Severe	½	6:45 a. m.	9:45 a. m.	Relieved in 30 min. after 2nd.	None

Table 1. *Benzedrine Sulfate* (Continued)

Case No.	Type of pain	Amt. of Dose Tablet	Time of 1st Dose	Time of 2nd Dose	Results	Additional Medication
37	Severe	½	10:10 a. m.	11:10 a. m.	No relief; crying with pain (no relief from 1st dose, other medication).	L. sedans Hot water bottle
38	Moderate	½	11:00 a. m.	11:45 a. m.	Complete relief, approx. 1 hr.	None
9	Severe	½	3:35 p. m.		Relief in 45 minutes.	None
11	Moderate	½	9:05 a. m.		Relief in 1 hr.	None
15	Severe	½	9:10 a. m.		Relief in approx. 1 hr.	None
39	Severe	½	10:30 a. m.	11:30 a. m.	Partly relieved.	L. sedans Hot water bottle
40	Severe	½	8:10 a. m.		Effective in 1 hr.	None
24	Severe	½	9:00 a. m.	10:00 a. m.	Partly effective 1st dose. No change after 2nd dose.	Hot water bottle
41	Severe	½	9:30 a. m.		Relief in 1 hr.	None
42	Severe	½	9:30 a. m.		Relief in 1 hr.	None
43	Severe	½	9:30 a. m.	11:00 a. m. (¼ tab.)	Some relief 1st dose. Complete relief 1 hr. after 2nd.	None
44	Severe	½	9:45 a. m.		Apparent relief, 1 hr.	None
45	Severe	½	9:30 a. m.	11:45 a. m.	Greatly relieved after 1st dose. Cramps returned later.	L. sedans
46	Severe	½	7:30 a. m.	10:00 a. m. (¼ tab.)	Some relief after 1st dose. Complete relief 1 hr. after 2nd.	None
5	Severe	½	8:00 p. m.	9:30 p. m. (¼ tab.)	No results from 1st dose. Relief after 2nd dose.	None
47	Moderate	½	11:00 a. m.	12:30 p. m.	Some relief after 2nd dose.	None
48	Severe	¼	9:00 a. m.		Relief in 1 hr.	None
49	Severe	½	8:00 a. m.		Relief in 1 hr.	None
45	Severe	½	9:15 a. m.	11:00 a. m.	Some relief from 1st dose. No relief after 2nd dose.	Hot water bottle Viburnum
50	Severe	½	7:35 a. m.		No relief.	Codeine, seconal
51	Severe	½	10:25 a. m.		No relief.	Rx capsule
52	Severe	½	10:40 a. m.		Relief in 1 hr.	None
53	Severe	½	10:00 a. m.		Relief in 1½ hrs.	
54	Severe	½	2:30 p. m.		Relief in 1 hr.	
55	Severe	½	8:10 a. m.		Complete relief.	

Table 2. *Laetose Placebo*

Case No.	Type of pain	Amt. of Dose Tablet	Time of 1st Dose	Time of 2nd Dose	Results	Additional Medication
1	Severe	½	12:55 p. m.		Relief in 1 hr.	
2	Severe	½	6:00 p. m.		Relief in 1½ hrs.	
3 (30)	Severe	½	10:30 a. m.		Relief in 2 hrs.	
4	Moderate	½	2:50 p. m.		Relief in ½ hr.	
5 (34)	Severe	½	8:15 a. m.	9:15 a. m.	No relief after 2 doses.	Hot water bottle
6	Severe	½	10:00 a. m.	11:00 a. m.	No relief.	
7	Severe	½	9:20 a. m.		Complete relief ¾ hr.	Cramps returned. Given l. sedans
8 (1)	Severe	½	9:30 a. m.	10:30 a. m.	Moderate relief in 2 hrs.	Hot water bottle
9 (16)	Severe	½	8:30 a. m.	12:00 noon	Complete relief.	
10	Severe	½	10:10 a. m.	12:00 noon	Partial relief. Refused other medication.	
11 (33)	Moderate	½	9:20 a. m.		Relief in approx. 45 minutes.	
12 (31)	Severe	½	9:20 a. m.	10:30 a. m.	Some relief after 1st dose. Complete relief approx. ½ hr. after 2nd dose.	
13	Severe	½	9:30 a. m.	10:30 a. m.	Some relief after 1st dose.	L. sedans gave relief
14 (45)	Severe	½	10:35 a. m.		Relief in approx. 1 hr.	
15	Severe	½	8:00 a. m.	9:00 a. m.	Relief approx. 1 hr. after 2nd dose	
16	Severe	½	8:15 a. m.	9:15 a. m.	Moderate relief, 1 hr. Refused further medication.	
17	Severe	½	10:15 a. m.	11:45 a. m.	Some relief after 1st dose, relief after 2nd dose.	Hot water bottle
18	Severe	½	9:40 a. m.	10:45 a. m.	Slight relief.	Hot water bottle
19	Severe	½	8:00 a. m.		Relief, approx. 1 hr.	
20	Severe	½	8:00 a. m.	9.45 a. m.	No relief.	Hot water bottle Rx capsule
1	Moderate	½	8:15 p. m.	9:45 a. m.	Relief after 2nd dose.	
18	Severe	½	10:40 a. m.	11:40 a. m.	Some relief from 1st dose, no relief after 2nd.	Viburnum

NOTE: Identical case numbers on the foregoing table refer to the same patient.
Numbers in parentheses refer to the case number in the table on benzedrine sulfate.

of six months. Forty-five girls of the fifty-five who took the benzedrine sulfate responded favorably to the treatment as did twelve of the twenty who were given the lactose placebo. The girls who were not relieved by either medication were those who had histories of severe menstrual cramps.

A few students, knowing they could be excused from classes and other responsibilities, probably took advantage of the opportunity of coming into the Student Health Center when they either had only mild dysmenorrhea or no pain at all.

The fact that the lactose placebo seemingly brought relief in twelve instances suggests the possibility of psychotherapy as an important type of treatment in the relief of menstrual pain.

SPECIAL ARTICLE

ROUND TABLE DISCUSSIONS

Round table discussions were conducted at luncheon meetings on two days of the Annual Session of the Missouri State Medical Association in Kansas City, April 27, 28 and 29, 1942. Guest speakers appearing on the scientific program of the Session answered questions presented at the discussions.

HYPERTENSION

Question: Please give the indications and the results of operation upon the sympathetic nervous system for hypertension.

COBB PILCHER, M.D., Nashville: The operative attack upon the sympathetic nervous system for essential or malignant hypertension is one that has received a good deal of attention in recent years. I have been inclined to be rather conservative about it. There are two procedures, one of Adson and Craig in which the celiac ganglion and the splanchnic nerves are removed through the subdiaphragmatic approach; and the second, the Peet operation in which a supradiaphragmatic section of the splanchnic nerves and thoracic sympathetic chain is carried out.

There can be no doubt but that a definite percentage of cases in which this procedure is carried out are benefited. The procedure should be used only for patients without severe cardiac or renal damage and one can look forward to a reasonable proportion of cases in which the blood pressure will be lowered for a long period of time and I believe that in nearly 90 per cent of cases the patient will receive symptomatic relief, particularly from severe headache. There is also great relief of retinitis and other secondary changes. I think in all probability these procedures have been received too enthusiastically and have been misused in some cases. It will be found, I believe, as has been found in other procedures which were new, that this operation has a definite field of usefulness, but that field is still subject to definite limitations.

REMOVAL OF CERVIX

Question: Should the cervix be removed in all cases in which hysterectomy is done?

JOE VINCENT MEIGS, M.D., Boston: I think the cervix should be removed because one sees so many cases of carcinoma of the cervical stump following the subtotal operation.

MEIGS' TUMOR

Question: What is a Meigs' tumor?

DR. MEIGS: This tumor is a fibroma of the ovary with fluid in the abdomen and thorax. It was found in going over the cases at the Massachusetts General Hospital in 1934 that three patients had fluid in the abdomen and in the chest, and that after many chest and abdominal taps, when the tumor was removed, the fluid in both abdomen and chest disappeared. Four cases were reported by Meigs and Cass in 1936. Since that time there have been numerous other reports, the total now being twenty-seven. Exactly why the fluid is in the chest and abdomen is not known. A certain percentage of fibromas of the ovary will be mistaken for malignant disease because there is fluid in the chest. I believe that no patient with a palpable tumor in the pelvis and fluid in chest and abdomen, should not have an exploratory operation. If it is a fibroma and the tumor is removed the patient will be cured.

EXPLORATION OF COMMON BILE DUCT

Question: Dr. Walters has been asked to discuss the indications for exploration of the common bile duct.

WALTMAN WALTERS, M.D., Rochester, Minnesota: In regard to the indications for exploration of the common duct, I think that largely depends on whether or not the duct is enlarged. If a patient has an enlarged common duct it should be opened and explored for stones because a third of the patients who have stones in the common duct have never been jaundiced; two thirds of them do not have chills and fever. One can see that the absence of these symptoms is not an indication that stones are not present in the common duct.

CANCER OF STOMACH

Question: I should like to ask Dr. Walters to tell the percentage of cures following operation on the stomach for early operable cancer.

DR. WALTERS: In answering this question it is difficult to define what one has specifically in mind by the designation of "early" operable cancer. The thing that makes it difficult is the reference to "early," for cancers are of various degrees of malignancy and their extent beyond their original location is usually proportionate to the degree of malignancy present.

If one is willing to change the question to one which would ask for the percentage of cures following operations on the stomach for operable cancer, a very definite statement can be made. In a study completed by my colleagues, Drs. Gray

and Priestley, and myself, in which all of the cases of cancer of the stomach in which operation was performed at the Mayo Clinic from 1907 through 1938 were studied and the progress of the patients was followed subsequent to operation, 66.7 per cent of the patients traced following removal of cancer of the stomach in which grade 1 or grade 2 lesions were present lived five or more years after leaving the hospital, when the lymph nodes were not involved. This is in contrast to 49 per cent of the cases in which the lymph nodes were involved. Following removal of lesions of grades 3 and 4 cancers in which lymph nodes were not involved, 43.2 per cent of traced patients lived five or more years after leaving the hospital. On the other hand, when the regional lymph nodes were involved in lesions of grade 3 or 4, 15.6 per cent lived five or more years after leaving the hospital. Besides the degree of malignancy, there are, of course, other factors which influence survival rates such as the age of the patient, the type of operation and the size of the lesion. In the entire series of cases in which resection was performed, the five year survival rate was 28.9 per cent and when this is adjusted for the normal death rate it is 32 per cent.

POSTOPERATIVE BILIARY DYSKINESIA

Question: Are there any new methods of treatment of postoperative biliary dyskinesia, and what would you do for a severe case?

Dr. Walters: The term "biliary dyskinesia" has been applied usually to those cases in which painful spasms of the common bile duct occur subsequent to operations on the biliary tract. A diagnosis of biliary dyskinesia, in my opinion, should not be made until one definitely has excluded by surgical exploration the possibility that the presence of stones in the bile duct or pancreatitis is the cause of the pain and the obstruction. I have seen a great many patients for whom a diagnosis of biliary dyskinesia had been made on the basis that spasms of the sphincter of Oddi or of the duodenum were responsible when, in reality, stones were present in the common duct; this in spite of the fact that the patient had never been jaundiced.

Recently I operated on a refugee on whom cholecystectomy had been performed several years before in Germany. Biliary colic without jaundice had developed two or three years subsequent to cholecystectomy and a diagnosis of biliary dyskinesia had been made. The patient had consulted an internist in Berlin who had confirmed the diagnosis. Three months prior to her entrance to the clinic she had been under the observation of two separate groups of physicians in another part of the country who likewise had felt that biliary dyskinesia was present. At operation I removed three stones, each about 1.5 cm. in diameter, from her common bile duct. Therefore, in considering patients who continue to have biliary colic after removal of the gallbladder, I think the possibility that a stone in the common duct or pancreatitis is causing the recurring attacks of pain should be kept in mind. In cases of pancreatitis, there are edema and inflammation, usually in the head of the pancreas, which produce stasis in the lower end of the common bile duct and, with the stasis, infection of the bile occurs, producing attacks of colic. In these cases external drainage of the common bile duct by a T tube usually causes subsidence of pancreatitis and relief of symptoms.

HYPERTENSION

Question: If renal disease is the primary cause of hypertension, how is its partial relief by improvement in the metabolic state of the patient explained?

Irvine H. Page, M.D., Indianapolis: I do not quite understand what is meant by "improvement in the metabolic state." If one grants that there is a primary genetic agent, namely, angiotonin, that produces hypertension then that agent must act on the body to produce the elevation in blood pressure. The responsiveness of the body will determine the height to which the blood pressure will rise. And this responsiveness will depend, if you like, on the "metabolic state" and, more specifically, on the state of the endocrine and nervous systems. All are well aware of the reduction in blood pressure which occurs when psychic problems are resolved. All know the effect on arterial pressure of ablation of the adrenal glands, say, by tubercular infection. It seems likely, therefore, that blood pressure is affected both by an indirect action of these systems in preparing the ground for the action of a humoral pressor agent and by direct action in causing vasoconstriction. Corcoran and I believe that the effect of sympathectomy is chiefly an indirect one. At least we will go so far as to say that these operations do not increase the renal blood flow and so overcome a possible ischemia of the kidneys.

Question: Many hypertension patients are alarmed. What advice will overcome this alarm?

Dr. Page: This is an excellent question. There is no doubt that a wave of alarm is spreading over the people due to the recent publicity concerning hypertension. Unfortunately, this has seemed desirable because of the lethargy with which this greatest of all killers is viewed. And the medical profession is equally guilty with the laity. The amount of research on hypertension, until the last several years, has been almost negligible. It is for reasons such as this that patients have been jolted into a realization of the seriousness of the situation. And from this spreads alarm and misunderstanding.

At the Lilly Clinic a plan of fairly systematic education of the patient into the nature of the disease has been employed; what may be expected and, in general, what to do about it. It has seemed wise to explain to the patient that he must not become wedded to the readings on the sphygmomanometer. He must be convinced and educated to realize that it is not in his best interest to follow the height of his blood pressure. He must be shown

that he cannot guess the height of his blood pressure. The vast difference in prognosis in the different varieties of the disease must be explained. The handicaps which exist in each patient must be evaluated and explained. Most of all, both patient and physician must realize the significance of the fact that hypertension is a chronic disease and hence long-range planning is necessary. These are only a few of the many problems which need explaining to allay alarm.

RHEUMATIC HEART DISEASE

Question: Dr. Reimann, will you give a brief outline of your reasons for doubting focal infection as a cause of rheumatic heart disease?

HOBART A. REIMANN, M.D., Philadelphia: I have been interested in this problem for a long time and have come to the conclusion from my own observation and that of others that removing or not removing tonsils has little or nothing to do with the end results so far as rheumatic heart disease is concerned. The same would apply to the whole subject of rheumatoid arthritis. I think all are aware of the great change of opinion in regard to this matter. In the treatment of rheumatoid arthritis, taking out teeth and tonsils is often the last resort simply because there is nothing else to do and because, sometimes, people who have this condition are improved temporarily after any operation; but there are no controlled statistical studies to show that the removal of teeth or tonsils has anything to do with the disease. Furthermore, if one understands the natural history of rheumatoid arthritis he will find that of one hundred patients, 50 per cent will improve, 25 per cent get entirely well and 25 per cent get worse, no matter what is done. If one takes out the tonsils, 75 per cent improvement can be expected anyway. The important thing I want to call attention to is that patients with rheumatoid arthritis are often chronically sick people and their teeth and tonsils are apt to be adversely affected as a result and are not the cause of the condition itself.

VIRUS PNEUMONIA

Question: What clinical or laboratory criteria, except animal inoculation, justify the diagnosis of virus pneumonia?

DR. REIMANN: There are no laboratory criteria available for diagnosis except the ones usually mentioned, as a normal leukocyte count and slightly increased sedimentation rates. Animal inoculation is at present feasible in only highly specialized laboratories. Diagnosis usually is made by the clinical history. Sputum examination is helpful from a negative standpoint. If the sputum contains no significant bacteria, the pneumonia might be caused by a virus. The diagnosis cannot be made with any certainty until an animal susceptible to the infection is found.

Question: How complete is the resolution in cases of virus pneumonia? Is there any residue to be recognized radiographically? How frequently does the complication of pleuritic exudate occur?

DR. REIMANN: Resolution is usually complete after a few weeks. In some cases it takes longer because of the interstitial involvement in contrast with lobar pneumonia, in which the exudate is intra-alveolar. I have had patients with virus pneumonia in whom the lesion was still present two months afterward. There is radiographic evidence of residue in some cases. The complication of pleuritic exudate practically never occurs.

Question: Do you believe focal infection to be an etiologic factor in atherosclerosis of the coronary arteries leading to coronary thrombosis?

DR. REIMANN: I do not think focal infection, as used in the usual sense of the term, has anything to do with it. Obviously, infection in any part of the body might have an adverse effect on the circulation, just as any toxic substance would affect the arteries, but whether it is a specific cause is doubtful. I do not think it is.

CARCINOMA OF BREAST

Question: What is the place of roentgen ray therapy in carcinoma of the breast?

ARTHUR PURDY STOUT, M.D., New York: That is a very much discussed question and I can speak only for my colleagues at Columbia and at the Presbyterian Hospital in New York. We feel it has two very distinct uses. It is the treatment of choice for inoperable cancer of the breast and it is the treatment of choice for distant metastases in the lung or other places because it frequently relieves the pain and makes the final days more comfortable.

In regard to operable cancer of the breast in which one has some chance of curing the patient, I feel that preoperative radiotherapy or postoperative radiotherapy do not increase the patient's chance of long survival or cure at all. I was interested to observe that at the Memorial Hospital in New York, where they were strongly in favor some time ago of preoperative radiotherapy, they have now changed their opinion and seldom use it.

MULTIPLE MYELOMA AND HYPERPARATHYROIDISM

Question: Is the roentgen ray picture of early multiple myeloma confused occasionally with the bone changes in hyperparathyroidism? Is the Bence-Jones test of diagnostic value in multiple myeloma?

OLIVER COPE, M.D., Boston: Multiple myeloma may be confused with the bone disease type of hyperparathyroidism, particularly when it is in an older individual in whom there is an associated decalcification. Multiple myeloma should be recognized, however, in the younger individuals who have a normal well calcified bony cortex. There are two outstanding differences in the bone picture of the two diseases as revealed by the roentgen ray. In the first place, hyperparathyroidism is a hormonal disease and all bones of the body are

affected to some extent. Multiple myeloma is a malignant disease and although it characteristically involves many bones, it rarely involves the whole of any bone. Between areas of disease in a given bone, such as the pelvis or the skull table, there will be areas of normal appearing bone. It is this differential point which is rendered difficult to evaluate if there is a concomitant decalcification or osteoporosis such as that following the menopause in some women. The second differential point is the unequal distribution of malignant lesions in the skeleton as a whole. In multiple myeloma, as in metastatic malignancy, the bony lesions decrease in frequency the more distal the position on as extremity. Lesions may be frequent near the shoulder, rare at the wrist or hand. In hyperparathyroidsm there are as many lesions in the bones of the hand, radius and ulna as in the humerus.

The presence of Bence-Jones protein in the urine of a patient suspected of having multiple myeloma is supportive evidence of this disease but it is not diagnostic. The protein is present in almost all cases of multiple myeloma during any active phase of the disease. The protein may not be found in the urine when the disease is not actively spreading. Any disease which is associated with rapid destruction of bone and displacement of bone marrow may be associated with a positive Bence-Jones test. It has been present in two of our cases of hyperparathyroidism with classic bone disease and we believe it was due to the rapid progression of giant cell tumors. It is occasionally present in patients with metastatic malignancy in bone. A positive test, therefore, suggests multiple myeloma; a negative test does not exclude multiple myeloma.

VITAMIN D IN HYPERPARATHYROIDISM

Question: What is the role of vitamin D (in the New England states and other areas) as it relates to hyperparathyroid disease?

Dr. Cope: This question I suppose was suggested by a paper from the Mayo Clinic by Dr. Wilder and Dr. Howell (J. A. M. A. **106**:427, 1936). They sought an explanation for the reason there were so few cases of hyperparathyroidism in Minnesota and so many on the New England coast and in England. Along the eastern seaboard and in England there is not only fog but there are large industrial areas producing a great deal of smoke. The atmosphere is cloudy; the actinic rays of the sun do not penetrate to as great an extent in these areas as in the Middle West where the atmosphere is clear. This relative lack of sunlight should cause an increased incidence of rickets or vitamin D deficiency. Since rickets is known to be associated with a parathyroid hyperplasia, the lack of sunlight could account for an increase in number of cases of hyperparathyroidism if one could assume parathyroid hyperplasia as the precursor of a parathyroid adenoma. There is little substance in this theory. In the first place, if it were true, the disease should be more common in the Negro and this has not been shown to be the case. Rickets has a higher incidence in the Negro than in the white. In the second place, I do not think that it has been demonstrated that hyperparathyroidism is less common in this part of the country than it is along the seacoast. Of the eighteen patients with the classical type of hyperparathyroidism who have been referred to us from elsewhere, many have come from the regions of plentiful sunshine. One has come from near Indianapolis, one from Iowa, one from Michigan, and, indeed, one from Minnesota itself. The answer to the apparently unequal distribution geographically of hyperparathyroidism is not in vitamin D insufficiency but in the effort our medical profession is willing to put in to making the diagnosis. The classical cases are easy to diagnose but it takes time and persistence to ferret out from among the patients with renal tract calcification those with hyperparathyroidism.

LEAD INTOXICATION

Question: Have you had an opportunity to observe the effect of parathyroid administration on lead excretion in cases of chronic lead intoxication? Do you think such a procedure is valuable in deleading individuals suffering from chronic lead intoxication?

Dr. Cope: This question is very interesting to me for historic reasons. Parathyroid extract does cause an increased excretion of lead along with the calcium in patients with chronic lead poisoning. This was shown by Aub in 1925 (Hunter and Aub, Quart. J. Med. 1925). The study formed one of the steps in the understanding of calcium metabolism and the parathyroid hormone and led directly to the discovery of the first case of hyperparathyroidism in this country. Six patients with chronic lead poisoning, injected with parathyroid extract, excreted an increased amount of calcium through the kidney. A man with diffuse disease of the skeleton behaved metabolically in the same manner and it was concluded that he must have overactivity of his parathyroid system. Apparently additional parathyroid hormone is not necessary to delead a patient; it can be accomplished on a very low calcium intake. I have seen one patient with lead poisoning whose lead colic recurred during a period of too rapid deleading. The rapid deleading which might be produced by the parathyroid hormone might result in a recurrence of colic in spite of the fact that the parathyroid hormone would also cause an increase in blood calcium ion which would tend to inhibit colic.

CALCIUM METABOLISM

Question: Compare thyroid influence on calcium metabolism with the better known influence of parathyroids.

Dr. Cope: Five glands affect calcium metabolism. The parathyroids are of course one and the best heralded. The thyroid exerts however a greater effect on the total calcium balance than any of the other glands. Patients with hyperthyroidism ex-

crete more calcium in their urine than do patients with hyperparathyroidism. There is also more calcium in the feces in patients with hyperthyroidism. The only reason that the majority of patients with thyrotoxicosis do not develop decalcification and fractures is that because of their increased appetite they eat sufficient calcium to feed this abnormal output. In those patients with thyrotoxicosis and a poor appetite or nausea, skeleton decalcification does develop. The thyroid hormone, in contrast to the parathyroid, does not produce a change in the blood levels of calcium and phosphorus with the one following exception, a low blood calcium level is raised toward normal with increasing thyroid function. One treatment of chronic parathyroid tetany is therefore dessicated thyroid.

The other glands which affect calcium metabolism are the pituitary, adrenal cortex and the gonads.

RESEARCH SHOWS MUSCLE SPASM IS PRESENT IN POLIOMYELITIS

Substantiation of the concept of the Australian nurse, Miss Elizabeth Kenny, that muscle spasm "is a damaging and ever present symptom of the disease infantile paralysis . . ." is reported in the July 18 issue of *The Journal of the American Medical Association* by R. Plato Schwartz, M.D., and Harry D. Bouman, M.D., of the University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

By making graphic records of the electric current produced by muscles in action, the two investigators found that spasm exists not only in the muscle opposite (antagonist) the muscle weakened by infantile paralysis, as contended by Miss Kenny, but it also exists in the weakened muscle itself and in muscles in parts of the body in which clinical symptoms of the disease are not evident.

The term "muscle spasm" denotes a group of symptoms including twitchings, excessive irritability of the muscle to stretching and a more or less continuous state of contraction of the muscle fibers.

Drs. Schwartz and Bouman explain that the recent increase in favorable observations regarding the Kenny concept of spasm in the acute stage of infantile paralysis has not been accompanied by evidence from any investigation aimed specifically at verifying this concept. Accordingly, they say, "it was necessary to approach this question of muscle spasm by a method which would be independent of, but could be correlated with, clinical observations.

"Action currents are among the means most suitable for recording extremely minor contractions of muscle. . . . The rigid principles that define the technic of this method were applied to the study of patients: (1) 7 with infantile paralysis, (2) 3 with spastic paralysis and (3) normal subjects for control. . . ."

Other conclusions reported by the two investigators are as follows:

"The spasticity is of a reflex nature and is not present in the completely paralyzed muscle.

"The spasticity can be stronger than the voluntary contraction that the muscle is able to perform, as adjudged by action currents.

"When the strength of the voluntary contraction increases through treatment, the spasticity decreases.

"Our investigation has shown that spasticity is present in infantile paralysis. Whether the spasticity is actually responsible for weakening of the muscle or whether it is a phenomenon which is merely another consequence of the disease is a question which cannot be answered at the present time."

AVOIDANCE OF CONSTIPATION THROUGH DRINKING OF WATER

"The available data do not justify the opinion that excessive amounts of ingested water may be considered a factor in avoiding constipation," *The Journal of the American Medical Association* for July 4 says, adding that "the mode of living, habits, diet and emotional responses are probably the determining factors in the causation of constipation."

Elaborating on the subject, *The Journal* says:

"Constipation is a clinical term—loosely used—denoting a state of the bowels in which evacuations are infrequent and difficult or the volume of the stools is insufficient. Evacuation of feces is the function of the left half of the colon. A number of clinical, mechanical and reflex (gastrocolic) factors are recognized as contributing to its proper function. The amount of water ingested daily is probably not a factor of any great importance in the maintenance of this function. Consumed water is absorbed principally in the right half of the colon. Insufficient fluid intake would result in a drier fecal current to the left colon."

URGES STUDY OF HORMONES AND VITAMINS IN RELATION TO SENILITY

There is sufficient evidence to indicate that if clinical trials of the hormones and vitamins will be simultaneously organized and performed in several hospitals on a large number of senile patients there might be a reasonable hope of obtaining, even during the period of the present war, some practical results, especially with vitamins, in the way of helping older men keep fit both mentally and physically, V. Korenchevsky, London, England, declares in *The Journal of the American Medical Association* for June 20. Summarizing his paper "The War and the Problem of Aging," the author says:

"The process of aging of several functions and capacities, so far examined with the methods used, starts in the human organism at the age of 25 to 30, of some of them even much earlier (as also suggested by certain changes in the organs and tissues recorded by Minot, Robertson and myself).

"From the practical point of view, this decrement with aging of some functions and capacities becomes considerable from the age of 50 and especially 60.

"It must be emphasized, however, that the conditions of the functions and capacities in some young people can be as 'old' as or 'older' than their average condition at the age of 60 to 70, and, conversely, in some old people of 50 to 70 their condition can be equal to or better than the average of these features at the age of 20 to 25.

"There are also important and irreplaceable advantages of old age: wisdom has been acquired and ability has been tested and proved.

"There is sufficient evidence to indicate that (a) pathologic [disease] changes occur with aging in the sex, thyroid and adrenal glands; (b) a similarity exists between certain senile changes and some features of deficiency of these glands and also of vitamin deficiency. At the same time (c) successful treatment of some senile features with hormones and vitamins has been claimed, although it must be emphasized that apparently a deficient technic was used in many investigations.

"All these data point to the urgent necessity for clinical research in order to elucidate the favorable effect of these compounds on old people.

"If proved, the physiologic, natural, stimulating properties of these compounds might be especially helpful to old people in lessening the effect of great strain and in increasing the working capacity in periods of such great crises as war. . . .

"This limited and practical aspect of the problem of aging is one of the war problems, and research on this subject is one of the urgent tasks connected with the war."

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AUGUST, 1942

EDITORIALS

HEALTH OF THE ARMY

The Surgeon General reports that the health of the Army is excellent according to an announcement made by the War Department on June 29. No general outbreak of acute respiratory disease occurred in the winter months, and compared to the previous winter, there was a reduction of 52 per cent for all diseases and 70 per cent for respiratory infections. Since the winter months, the admission rates to the Army for all cases have shown a steady decline of nearly 25 per cent, due chiefly to a falling off in respiratory infections. The venereal disease rates are now lower than at any time since the beginning of mobilization, and the syphilis rate for the first five months for 1942 is the lowest in the history of the Army. There has been a steady decline of as much as 30 per cent in cases of gonorrhea.

In recent weeks there have been numerous admissions to hospitals on account of jaundice, which has the characteristics, the War Department said, of catarrhal jaundice (epidemic hepatitis), but the total number of cases in the entire Army has not been enough to increase appreciably the admission rate for all diseases. The War Departments points out that this is definitely not yellow fever and it is not dangerous to the general public. The disease is being studied, however, by some of the outstanding medical scientists. Outside of the United States, health conditions in the Army continue favorable. There have been no serious epidemics and only slight rises in admissions due to diseases peculiar to some of the new areas where the troops are established.

BIRTHS AND DEATHS IN THE UNITED STATES

While the United States set a new record low for infant and maternal death rates in 1940, the "Vital Statistics Summary: United States, 1940" finds that the general mortality rate increased slightly, from 10.6 per thousand to 10.8. This change was due largely to increases in deaths from heart disease, cancer and diabetes. The birth rate, however, also increased from 17.3 per thousand of population in 1939 to 17.9 in 1940, which is the highest recorded from the birth registration area since its completion in 1933. Possibly this indicates a cyclic change closing a long period of a declining birth rate.

This increase in birth rate has been accompanied by a reduction of the infant mortality rate to 47.0 per thousand live births in 1940, which was the lowest ever recorded for the birth registration area. However, the provisional infant death rate for 1941 is 46.2, which would seem to predict a further decline. In 1915 the infant death rate was approximately 100, so that the last twenty-five years has seen a decline of about one half. It is estimated that this amounts to the saving of the lives of 973,626 infants that would otherwise have been among the 3,264,365 infants who died during the past twenty-six years. This reduction in infant mortality has taken place in both the white and Negro races, although the rate for Negroes is still considerably higher than that for the white race. The rate of decline of infant mortality has been slightly greater for the Negroes than for the white race.

The lack of medical care in rural districts, of which so much has been said and written, did not raise the death rate on the farms to the level of the city population. The rural rate in 1940 was 9.8 per thousand of population, while in the cities of more than a hundred thousand residents it was 11.3 The highest rate (12.4) was in cities of between 2,500 and 10,000 population. Males have a decidedly higher death rate than females: 12.0 to 9.5 per thousand of population respectively. There is an even wider difference between the white and other races, the white being 10.4 and "other races" 13.8.

A comparison of the crude death rates for thirty-three specified countries, of which the latest information is for the year 1937, shows that of nations with a dominant white population Chile has the highest death rate. Yet Chile is the only nation on the western continent that has an extensive system of sickness insurance. The only nations that have a lower death rate than the United States are Denmark, Uruguay, Norway, New Zealand, Australia, Canada, Union of South Africa and the Netherlands. Denmark is the only one of these countries that has a nationwide system of compulsory sickness insurance.

From *The Journal of the American Medical Association*, July 18, 1942.

GROUP HOSPITAL SERVICE, INC.

Group Hospital Service, Inc., St. Louis, recently issued its sixth annual report covering the fiscal year ending April 30, 1942. The report shows the following increases over the previous year: assets on April 30, 59 per cent; reserve for contingencies, 61 per cent; reserve per person, 16 per cent; reserve per contract, 19 per cent; earned income during the

year, 43 per cent; earned income during the month of April, 31 per cent; membership on April 30, 39 per cent; hospital cases, 37 per cent. There was no increase in income for hospital care and income for administration decreased 2 per cent.

During the last year $824,927.40 was paid to St. Louis hospitals. There was $100,425.45 paid to outstate and Illinois member hospitals and $62,-117.56 paid to nonmember hospitals, making a total of $987,470.41 paid to hospitals by Group Hospital Service. Extra charges paid by patients, including private rooms, dependent charges and professional services not covered by the plan, amounted to $459,802.95, making a total of income to hospitals of $1,447,273.36.

There were 21,574 cases cared for during the year with 197,344.5 patient days. Average hospital stay was 9.1 days. During the six years of Group Hospital Service, it has cared for 53,351 cases with 483,383.5 hospital days. There has been paid to hospitals by Group Hospital Service $2,411,358.82 and $1,107,410.84 has been paid by patients in extra charges, making a total of $3,518,769.66 paid to hospitals through Group Hospital Service in the six years.

Assets for the last year were $911,299.05 as compared to $573,304.03 for the previous year.

At the close of the fiscal year there were 119,750 contracts in force covering 243,562 persons, a net increase of 68,745. There were 15,831 cancellations, approximately 10 per cent represented by suspensions for military service.

Of the approximately 1,300,000 people in the metropolitan area of St. Louis, 17 per cent are enrolled with Group Hospital Service. A recent study by the Social Planning Council showed that during March and April nineteen participating hospitals in St. Louis rendered 16 per cent of the total days care to Group Hospital Service patients.

SAYS PUBLIC MUST AID PHYSICIANS IN MEETING NATION'S WAR NEEDS

Preventable illness and unreasonable demands on the time of physicians must be reduced to a minimum because of the urgent need for physicians for the armed forces, Paul V. McNutt, chairman of the War Manpower Commission, declared in a special statement for *The Journal of the American Medical Association* on "The Procurement of Physicians." That the information may reach as many physicians as possible, the American Medical Association has requested that the statement of Mr. McNutt and the editorial comment carried in *The Journal of the American Medical Association* be commented upon in state journals. The statement, published in the June 27 issue, follows:

"On June 8, I described to the American Medical Association at its Atlantic City meeting the acute need for physicians for the military services. I pointed out how far the recruitment of physicians lagged behind expected quotas. In conclusion I stated bluntly the fact, which could not have been evaded by any analysis, that unless voluntary recruitment progressed more rapidly some more rigorous form of selective service must be resorted to.

"Those facts were necessary in order to permit the medical profession to diagnose it own case. And the case is urgent; physicians are members of what is probably the most indispensable of all professions. Despite the harshness of the facts and the bluntness with which I had to state them, I felt that the profession should be informed.

"In fairness to the recruitment record of many of our states, it seems in order at this time to give the profession some further idea of how its problem is distributed. The failure of a sufficient number of physicians to volunteer for military service is not spread thinly over the whole country. There is an acute lag in certain populous states. Other states have supplied nearly all that they should supply.

"We need more than twenty thousand additional physicians by the end of this year. But eight states—New York, Illinois, California, Pennsylvania, Massachusetts, New Jersey, Michigan and Ohio—should account for nearly sixteen thousand of that shortage.

"By contrast, sixteen states have fewer than a hundred physicians to go to reach the total number they should supply. In order not to deplete unduly available medical services in those areas, we are asking that the Medical Officers Recruiting Boards be withdrawn and that further enlistments from those areas be then discouraged except in the case of the men under 37 in the urban areas. Those states are Alabama, Arizona, Delaware, Idaho, Louisiana, Mississippi, Montana, Nevada, New Mexico, North Dakota, South Carolina, South Dakota, Utah, Vermont, Wyoming and Virginia.

"The acute problem for the next few months for those states is an equitable distribution of medical service within their borders. This will avoid the necessity for any consideration of plans to allocate doctors from other states to meet civilian needs.

"More than one hundred and thirty thousand physicians have returned their registration forms to the Roster for Scientific and Technical Personnel. Those forms are now being processed. When that work is complete we shall be able to give the profession a more comprehensive report on the relation of available medical service to wartime needs.

"The seriousness of the deficit in the number of physicians available for armed forces should not be underestimated. The need must be met. It will be met by one method or another. Neither must we underestimate the serious drain this puts on available medical services in civilian communities. It will mean long hours and hard work—sacrifices which will multiply the deep debt that every community owes to its physicians.

"It cannot be met simply by multiplying the hours of the physicians who are left. There will

be a real need to exercise every possible means for minimizing unnecessary medical services in order that the real needs may be met.

"It is my belief that the lag in recruitment has been due chiefly to the fact that the individual physician has not realized the genuine urgency of the need. Measures must be taken which will bring those home to every individual. This means that there will have to be some education of the general public. Preventable illness must be reduced to to a minimum. Unreasonable demands on the physician's time must be reduced to a minimum. Thus only may available medical service adequately cover the needs."

An editorial in the same issue of *The Journal* says:

"Elsewhere in this issue appears a statement by Mr. Paul V. McNutt, chairman of the War Manpower Commission, under which the Procurement and Assignment Service for Physicians, Dentists and Veterinarians functions, relative to the urgent need for physicians for the armed forces at this time. Mr. McNutt recognizes the indispensable character of the physician for both military and civilian needs. He makes clear that eight states—New York, Illinois, California, Pennsylvania, Massachusetts, New Jersey, Michigan and Ohio—must supply most of the physicians needed for the armed forces at this time. Some of the states have already supplied so many physicians in proportion to their total medical population that recruitment in those states is to be discontinued now or in the near future.

"The medical profession cannot be accused of failure to play its part in any way in relationship to the war effort. Every one who is participating in the recruitment of physicians recognizes that there have been what are now called innumerable 'bottle necks' to be cleared away from time to time as the effort has progressed. More than one hundred and thirty thousand physicians have already returned the registration blanks sent out by the National Roster of Scientific and Technical Personnel. These replies have been coded, and punch cards have been made for them. Any physician who has failed to receive an enrollment form from the National Roster should write at once to the National Roster of Scientific and Technical Personnel, in care of War Manpower Commission, 916 G Street Northwest, Washington, D. C., requesting that an enrollment form be sent to him.

"Shortly there will be sent to every physician who indicated that service in the United States Army Medical Department would be his first choice or his second choice a letter as follows:

WAR MANPOWER COMMISSION

Procurement and Assignment Service
Washington

Procurement and Assignment Service for
Physicians, Dentists and Veterinarians

Dear Doctor:

You have indicated your willingness to serve the Nation in this great emergency. The Procurement and Assignment Service of the War Manpower Commission now calls on you to enter the Service. Please apply at once for a commission. You have been selected from among the available physicians in your community by a process that is believed to be fair and impartial.

Complete and mail the enclosed post cards immediately. The Office of the Surgeon General or his representative will provide the necessary application forms and authorize the time and the place for your physical examination.

Do not take any definite action regarding your practice until you receive specific instructions from the War Department. Each physician who is commissioned is routinely allowed fourteen days to wind up his affairs after receipt of orders from the War Department.

The rapidity of recruitment now in effect makes this communication necessary and requires your full cooperation. Please do not delay.

Sincerely yours,
Frank H. Lahey, M.D.,
Chairman, Directing Board,
Procurement and Assignment Service.

Enclosures
No. 92 6/22/42

"With this letter will be enclosed two postal cards, which will secure prompt action in relationship to the receipt of application forms and proper notification of the action taken in the responsible agencies in Washington.

"The needs of the armed forces for physicians are immediate; unquestionably those needs will be met. Physicians who are under 37 years of age and who have been classified by the Selective Service are susceptible to restudy of their situation and reclassification as these needs become more and more urgent. The medical schools, hospitals, public health departments, industrial concerns, in fact every agency utilizing the services of physicians, must cooperate by restudying the men classified as essential, so that only those who are actually essential in the most restricted sense of that word will be retained. All others must be made available as needed for the service of the nation in the armed forces.

"The Procurement and Assignment Service for Physicians, Dentists and Veterinarians was established to aid in the proper assignment of physicians in times like these to the tasks for which they are best fitted. Already this agency has been of immense value in the principles that have been adopted relative to the maintenance of medical education, hospital service and civilian health, as well as the study and evaluation of men for the Army and Navy medical departments. As the needs become more acute and the number of men available less, their task assumes increasing importance. The War Manpower Commission is now the agency under which the Procurement and Assignment Service functions. Through the activities of various subcommittees such problems as maintenance of essential staff members for hospitals, the determination of adequate medical service for the civilian population needs, of adequate personnel for urban, county, state and national health departments and the needs of industry are being given special consideration. The medical profession, as Mr. McNutt has repeatedly empha-

sized, has in these activities shown the way to scientific study and allocation of manpower in this emergency."

NEWS NOTES

Dr. Ernest Sachs, St. Louis, was recently elected president of the American Neurological Association.

Dr. Borden S. Veeder, St. Louis, was elected chairman of the St. Louis Chapter of the American Red Cross at a meeting of the executive board on July 3.

Rev. Alphonse M. Schwitalla, S.J., St. Louis, dean of the St. Louis University School of Medicine, has been elected president of the Catholic Hospital Association of the United States and Canada.

Drs. Andrew C. Henske and E. J. Schisler, St. Louis, were guests of the Franklin County (Illinois) Medical Society at Zeigler, Ilinois, on June 25. Dr. Henske spoke on "Diagnosis of Pulmonary Tuberculosis in General Practice" and Dr. Schisler on "The Heart in Tuberculosis."

DEATHS

LaForce, Herman August, M.D., Joplin, graduate of Washington University School of Medicine, 1916; member of the Jasper County Medical Society; aged 56; died March 31.

Frick, William Jacob, M.D., Kansas City, graduate of the Kansas City Medical College, 1888; honor member of the Jackson County Medical Society, died April 1, 1942.

Hayden, John G., M.D., Kansas City, graduate of the Rush Medical College, 1904; member of the Jackson County Medical Society; aged 63; died April 17, 1942.

Campbell, Given, M.D., St. Louis, a graduate of the Washington University School of Medicine, 1889; honor member of the St. Louis Medical Society; aged 75; died April 20.

Campbell, Oliver H., M.D., St. Louis, graduate of the Missouri Medical College, St. Louis, 1899; honor member of the St. Louis Medical Society; aged 71; died May 27.

ORGANIZATION ACTIVITIES

1338 CHILDREN ATTEND CLINIC

The largest immunization clinic ever held in Chariton County and one of the largest clinics of its kind ever held in the State of Missouri took place the first week in July in eleven towns of the county. This was sponsored by the Chariton County Medical Society. Dr. G. W. Hawkins, Salisbury, was chairman of this defense project in the county.

Physicians in each community assisted by volunteer workers and by Miss Anastasia Immele, county health nurse, immunized free of charge 1,187 children for diphtheria and 1,234 children for smallpox.

This means that for at least the next five years there should be no epidemic of smallpox or diphtheria in Chariton County. It is hoped that from now on all babies as they reach 6 months of age will be immunized by their family physician so that Chariton County need never again have a case of smallpox or diphtheria.

Following are the number of children who attended clinics in each of the towns: Brunswick, 229; Bynumville, 113; Forest Green, 129; Keytesville, 155; Mendon, 116; Prairie Hill, 84; Rothville, 47; Salisbury, 301; Sumner, 17; Triplett, 49; Wein, 98.

MISCELLANY

COMMITTEE ON MEDICAL PREPAREDNESS AND PROCUREMENT AND ASSIGNMENT SERVICE

The history of the Committee on Medical Preparedness of the American Medical Association and its activities growing into the work of the Procurement and Assignment Service was presented at the Atlantic City Session of the American Medical Association by Dr. Irvin Abell, Louisville, Ky., chairman of the Committee. The report follows:

The Committee on Medical Preparedness of the American Medical Association was appointed at the June 1940 meeting of the House of Delegates in New York. A report covering its activities during the ensuing year was made at the June 1941 meeting of the House of Delegates in Cleveland. The present and final report covers its operations during the past year. It may be well to recall that the Committee on Medical Preparedness came into being as the result of a request of the Surgeon General of the Army that the American Medical Association undertake a survey of the medical personnel of the United States and its possessions to determine the number of physicians available for service in various capacities and to develop facts that would be useful in aiding the profession to render the greatest possible service in any national emergency that might arise. Among the objectives which the committee hoped to ascertain as fully as possible through this nationwide survey were (1) the number of physicians licensed to practice medicine, (2) the number capacitated for active service and the number of those incapacitated, (3) the number and location of physicians who may be qualified and available for service with the military forces of the nation and for other essential governmental services in case of national emergency, (4) the number available for service to the civilian population under emergency conditions, (5) the availability and qualifications of those who can serve acceptably in special fields of medicine, (6) the number and identity of physicians qualified for teaching and research who are believed to be essential for the proper maintenance of educational institutions and (7) the number and identity of physicians already engaged in governmental service. During the first year of this study the efforts of our country were directed toward preparedness, while during the second year the clarion call of war has demanded action.

THE CENSUS OF PHYSICIANS

The following information, statistical and otherwise, will attest the fidelity displayed by your committee in carrying out the instructions given to it by the House of Delegates.

The census of physicians, which was conducted by the Bureau of Medical Economics for the Committee on Medical Preparedness, began on July 5, 1940, with the mailing of schedules to approximately 180,000 physicians whose names were listed in the 1940 American Medical Directory. Of the 180,000 physicians, slightly more or less, who received this schedule, about 158,000, or approximately 86 per cent, supplied the information requested and returned the schedule to the American Medical Association. Schedules for the remaining 22,000 more or less physicians were prepared in the Bureau of Medical Economics or at the headquarters of some of the state medical societies with the incomplete information that was available in the American Medical Directory or from other sources. These schedules were marked "Incomplete," since all the information requested could not be supplied except by the physicians themselves. Since it was the desire of the staff to have in the punch card file information pertaining to all physicians in the United States, this method of preparing schedules for those physicians who, for some reason, failed or neglected to prepare their own schedules was used in order that a minimum of information might readily be tabulated for all physicians.

The census was undertaken to secure current information pertaining to the number, age, location, professional qualifications and other characteristics of individuals who comprise the medical profession in order that such information might be readily available to the Surgeon Generals of the Army and Navy in securing medical officers for war service.

It has been impossible for the staff that conducted the census of physicians to pursue the number of statistical analyses that could have been prepared from the data furnished by the medical profession. Only those statistical compilations that were deemed essential to a better understanding of the nation's available and effective medical manpower have been made.

No census figures express the quantitative value of the population group studied with any degree of accuracy except at a stated day or hour. It became necessary, therefore, to record changes in the census information as soon as the schedules were received. These changes fall largely into three or four groups, viz. deceased physicians, physicians recently licensed, physicians whose professional qualifications are changed and physicians who have changed their addresses. From the very beginning of the census, a part of the routine of the staff has been to correct the schedules and punch cards of physicians who fall in these four categories as quickly as reliable information of this nature has been received. It has not been possible to make changes in location on the listing sheets, but an effort has been made to keep up to date a system of follow-up in the published directory reports so that the latest known addresses of physicians might readily be found.

TOTAL NUMBER OF PHYSICIANS—VARIOUS SERVICES

Even before the census of physicians had progressed for no more than a week, deductions because of deaths were necessary. As time passed the names of newly graduated and licensed physicians were added. The result of two years of census effort with many corrections has given the committee records and punch cards for more than 181,500 physicians in the United States and its outlying territories and possessions. Of this number, some 176,000 physicians are located in the continental United States. Within the continental United States there were, as of January 31, 1942, 85,964 physicians in general practice and 90,227 physicians (including those classified as fully qualified specialists devoting their full time to a specialty and physicians who devote only special attention or a part of their time to some special branch of medicine). The ratio of full time specialists to special attention physicians is about 43 to 57.

To arrive at the number of physicians who are engaged in the private practice of medicine, it is necessary to deduct the number of physicians who are engaged in some service exclusive of the private practice of medicine. The total number of physicians engaged in full time appointments is 7,216. Of these, 2,816 hold teaching appointments, 910 are engaged in full time research work, 1,179 hold executive positions and 2,243 are engaged in full time work in industry. It is believed that most of those in the last named category are actually contributing much to the health of the industrial population although in many instances not actually caring for the sick or injured workmen.

The total number of physicians found to be employed in some form of government service, as of July 1940, was 9,819. This number has probably changed considerably in the past two years with the addition or reduction of the number of physicians in the several governmental services.

In public health there were: U. S. Public Health Service, 1,789; state health departments, 1,410; local health departments, 2,341; Veterans' Administration, 1,779; Indian Field Service, 910; other federal agencies, 2,293.

In hospital service there was a total of 16,457 physicians: in hospital administration, 3,089; as residents, assistant residents and fellows, 6,149; as interns, 7,219.

RACES AND AGE GROUPS

Classified in private practice there were in the continental United States at the beginning of 1942 about 142,700 physicians of all ages according to the most reliable figures that can be drawn from the census data. Of the 176,191 physicians in the continental United States, 164,488 were white male, 8,035 were white female, 3,362 were Negroes (both sexes) and 306 were of other races.

Distributed by age and including both general practice and specialists, in January 1942 there were in the continental United States 42,721 physicians under 36 years of age, 38,212 physicians between 36 and 44 years of age inclusive, 31,904 between 45 and 54 years and 63,354 who were 55 years of age and older. Among the 176,191 there were 3,942 physicians who were 80 years of age and older, 255 who were 90 years of age and older and 6 physicians who were 100 years of age or older.

It will be seen from these figures that the medical manpower resources of the continental United States, for military purposes, at the beginning of 1942 numbered approximately 112,800 physicians, since that was the number within the age limit for service in the Army. The requirements of the Navy would be drawn from this same number, although the upper age limit for original commission in the Navy is 50 years.

It must be remembered, however, that not this entire number of about 112,000 physicians can be made available to the Army and Navy, since to provide the armed forces with war material with which to accomplish their mission it is necessary to provide health and medical services for the civilian and industrial population. It is known also that many of these 112,000 physicians could not qualify physically for full military service.

The 63,354 physicians who are 55 years of age and older cannot be expected to supply all the medical services needed by the civilian and industrial population even when reduced by the removal from the ordinary population of several million men in the armed forces.

Tables which show the numbers of physicians by age, specialty and location are too large and complicated to show here. Such tables have been prepared, however,

and are available for use in connection with the medical war effort.

PROBABLE SHORTAGES IN CERTAIN SPECIALTIES

It is important also to make some mention of the relative numbers of physicians in certain specialties in relation to the military and civilian needs. There are certain specialties n which the number of qualified physicians is so small that when military and civilian needs are considered there appears at once a serious problem of equitable distribution of the available supply of specialists. The fields in which this problem is most serious are neurosurgery, plastic and maxillofacial surgery, orthopedic surgery, thoracic surgery, neurology, anesthesia, pathology, clinical pathology and bacteriology.

There is likewise a serious problem in relation to the supply of qualified physicians to supply certain services in industry.

An important work of the staff that has conducted the census has been the compilation of a file of physicians who are now on extended active duty with the armed forces arranged according to the states that have contributed these physicians from their medical manpower resources. Within the last month there has been received at the American Medical Association a list of commissioned officers prepared from duplicates of the punch cards that are a part of the Adjutant General's records. Other lists have been received from the Surgeon Generals of the Army and Navy that enable the staff to keep the records at the American Medical Association as nearly correct and current as it is possible to do. Arrangements have been made to receive regular reports of the numbers and names of physicians who are being commissioned by the recruiting teams now working throughout the United States.

CLEARANCE OF PHYSICIANS

Since the primary object of the census was to accumulate information that could be made readily available to the Surgeon Generals of the armed forces in the performance of their duty to provide medical services for the military establishment, the data that have been collected have been arranged in a manner that could be utilized easily for reporting to the Surgeon Generals on the location, medical education, age, licensure and qualifications of physicians whose names might be submitted to this office. The basic parts of the census had been almost entirely completed when the Procurement and Assignment Service was authorized in October 1941. Immediately after the organization of the Procurement and Assignment Service, the census material which had been arranged in listings was put to practical use in the clearance of physicians who had applied for commissions in the Medical Corps. The medical preparedness section of the Bureau of Medical Economics was designated as the Consultant Office of the Procurement and Assignment Service, and the director of the Bureau of Medical Economics was made the supervisor of that consultant office.

Since November 1941, when the work of the medical preparedness staff of the Bureau of Medical Economics was coordinated with the Procurement and Assignment Service, the amount of work required for the processing of the names of physicians who had applied for commissions in the medical corps is represented by the following figures: The number of names cleared for commission, 13,468. Of these cleared names, 100 were those of Negro physicians, and 1,753 were marked for assignment to the air force. In addition to the names which have been processed for commissions in the Medical Corps, lists of about 7,000 physicians in general practice and the specialties have been prepared for the Selective Service System in connection with its program of rehabilitation.

RECRUITING TEAMS

During the third week of April of this year the Army adopted a new policy for the purpose of securing physicians for commission in the Medical Corps. At present there are recruiting teams each consisting of a medical officer representing the Surgeon General of the Army who is to make the physical examination, and a line officer representing the Adjutant General of the Army, who is to assist in preparing other papers and to administer the oath of office for physicians who are commissioned in the grade of first lieutenant and captain. Already requests for clearance of names have been received from several recruiting teams or state chairmen. It is anticipated that this office may receive such requests from a large number if not all of the state chairmen for the Procurement and Assignment Service or the recruiting teams in the several states. In addition to the information requested for physicians who are to be given the grade of first lieutenant and captain, the regular clearance forms are still being forwarded from the Procurement and Assignment Service in Washington for those physicians who presumably are to be given a grade above that of captain.

The length of time which is required for the clearance of any particular physician, if considered separately, is not great, but, when that amount of time is multiplied by several hundred forms that are received at one time, the amount of time required for clearance becomes considerable. If to this is added the requests for clearance for some three or four dozen from each of the states, the amount of time required for clearance then becomes very considerable. Each state is, quite naturally, anxious to receive its clearance papers as soon as possible; but only one state can be cleared at a time, and work is conducted in as orderly a fashion as possible, giving each request the priority of the order in which it is received.

Every effort has been made to make available to the Army, Navy, Public Health Service, Selective Service System and other governmental agencies, either directly or through the Procurement and Assignment Service, information to assist in the procurement of physicians to fill either general or specific assignments. Some interesting data have come out of this circularization of the profession which shows the trends and types of practice now most popular and which therefore indirectly influence Army service.

PROCUREMENT AND ASSIGNMENT SERVICE ESTABLISHED

As these compilations and studies were being made by the Committee on Medical Preparedness it became apparent that certain conditions limited their utilization by the medical departments of the armed forces. Chief among these was the lack of volunteer applications for commissions in the Medical Corps, the greater percentage of calls to duty going to the Medical Reserve Corps and to the National Guard, the personnel of which was utilized to the extent made possible by physical fitness and availability of commissions commensurate with rank. The question of securing additional enlistments was given consideration by all of those cognizant of its need. The Subcommittee on Medical Education of the Health and Medical Committee recommended the establishment of an agency for the procurement of physicians for the armed forces, industry and the civilian population. This recommendation was referred to the Committee on Medical Preparedness, which, during its several sessions at Cleveland, canvassed the situation and presented to the House of Delegates a resolution relative to the establishment of a procurement and assignment agency to be concerned with the provision of medical personnel for the Army, Navy, Public Health Service and other agencies. This recommendation was unanimously adopted by the House of Delegates and subsequently sent to the Surgeon Gen-

erals of the Army, Navy and Public Health Service, to the Health and Medical Committee, to the administrator of the Federal Security Agency and to the President. This resolution was presented to the Health and Medical Committee at its meeting on July 2, 1941. The committee voted to adopted it in principle and to forward it to the Coordinator, Mr. McNutt, with the suggestion that he consult with the Secretaries of War and Navy, and that all matters concerning details of organization remain contingent on action taken by these officials.

The Committee on Medical Preparedness met in Washington on August 19 and 20, 1941, to consider this resolution in conjunction with representatives of the various federal agencies interested in securing physicians for their services. On September 3, 1941, an executive order promulgated by the President established the Office of Defense Health and Welfare Services with the Federal Security Administrator, Mr. Paul V. McNutt, as director. The Health and Medical Committee was transferred to this office and given the specific duty of advising the director regarding the health and medical aspects of national defense exclusive of medical research and to assist in the coordination of health and medical activities affecting national defense. The resolution of the Committee on Medical Preparedness relative to the establishment of a Procurement and Assignment Service was referred to the Health and Medical Committee, which on October 22 held a meeting to initiate the development of such a service. The meeting was attended by the director of the Office of Defense Health and Welfare Services and his staff, by representatives of the Army, Navy, Public Health Service, Civil Service Commission, National Institute of Health, American Medical Association, American Dental Association, by the full membership of the Health and Medical Committee and by the chairmen of its subcommittees on Medical Education, Dentistry and Hospitals. An agreement on policy was reached and a commission appointed to draft a program for the Procurement and Assignment Service. On the receipt of its report Director McNutt transmitted its recommendation to the President with the result that the Procurement and Assignment Service was established as one of the subdivisions of the Office of Defense Health and Welfare Services. The Health and Medical Committee and the Procurement and Assignment Service are closely correlated in that the Subcommittees on Dentistry, Hospitals, Industrial Health and Medicine, Medical Education and Negro Health of the two agencies have practically the same personnel. On December 18 at a meeting of the Board of the Procurement and Assignment Service with the preparedness committees of the American Medical Association, the American Dental Association and the American Veterinary Medical Association a definite organization was completed for the functioning of this service in relationship to needs of professional personnel in the war whch broke upon us on December 7.

Approval was given to the constitution of committees in each of the corps areas and associated naval districts to function in an advisory capacity to the corps area commander, the committees to consist of a chairman, who will be the corps area representative of the Committee on Medical Preparedness of the American Medical Association, one physician representing medical education, one representing the hospital organizations, two representing the profession at large, two members of the dental profession and one member of the veterinary profession. In most instances the state chairmen of the Procurement and Assignment Service are the state chairmen of the Committee on Medical Preparedness of the American Medical Association. This close integration permits of an intelligent use of the data compiled by the Committee on Medical Preparedness to the end that the service rendered by the medical profession during the war will be used to the greatest possible advantage. The Committee on Medical Preparedness of the American Medical Association met in Washington on January 30, 1942, with the Board of the Procurement and Assignment Service and representatives of the various interested agencies for the purpose of adopting final plans of procedure and action in utilizing the available professional personnel of the country for the duration of the war. Your committee has striven at all times to attain the objectives outlined in your instructions, which may be epitomized as loyal and complete participation in what is now an all out war effort. A final meeting of the Committee on Medical Preparedness was held in Chicago on May 9, 1942, at which its work for the past two years was reviewed. The census so far prepared is a continuing process, new schedules being required for recent graduates, older ones being withdrawn because of death or retirement. A large amount of clerical work is involved in change of addresses and in names of physicians ordered to active duty. An important phase of the census pertains to the professional and ethical qualifications of those on the roster.

RECOMMENDATIONS

As one who has done but little of the detailed work, the chairman desires to record for the appreciation of the House of Delegates the devoted and faithful service of the other members of the committee who have given unstintedly of their time and effort in carrying out your instructions. The corps area chairmen and the headquarters personnel have not regarded any sacrifice too great in promoting the committee's work, such sacrifice demanding not only intense application and tedious effort but appreciable donation of time from home and practice. The committee has spent many thousands of dollars of the Association's funds, and its members have devoted many hours of their time in accomplishing the survey, the like of which has not been done before. Since the objectives sought in the request of the Surgeon General of the Army have been attained as far as lies within the power of the committee, the Committee on Medical Preparedness begs to express to you its appreciation for the opportunity of service which you have given it and requests that it be now discharged.

Since the National preparedness program has now been superseded by actual participation in war, the Committee of Medical Preparedness recommends to the House of Delegates the appointment of a committee for the duration of the war to be known as the "Committee on Participation of the Medical Profession in the war Effort" composed of five members appointed by the Speaker of the House with the President, President-Elect, Chairman of the Board of Trustees, Secretary of the Association and the Editor of *The Journal* as ex officio members. The Committee on Medical Preparedness was appointed to accomplish a specific requested purpose: the proposed Committee on Participation of the Medical Profession in the War Effort in keeping close touch with all policies affecting the quality and efficiency of medical service both to the armed forces and to the civilian population would feel free to express comment and criticism of policies relating to the participation of medicine in the war effort. Without authority to act it could advise, expressing the view of the medical profession on such proposals as are made having a direct bearing on the principles which our Association regards as fundamental in providing good medical service.

The Reference on Military Preparedness, to which the report was referred, proposed the name of War Participation Committee of the American Medical Association. This was accepted by the House of Delegates and the Speaker of the House of Delegates appointed the following committee: Drs. Walter F. Donaldson, Pittsburgh, Chairman; Edward R. Cunniffe, New York;

Clyde L. Cummer, Cleveland; John H. O'Shea, Spokane, Washington, and William R. Molony, Sr., Los Angeles. In accordance with the action of the House, the ex officio members of the Committee are the President, the President-Elect, the Chairman of the Board of Trustees, the Secretary and the Editor of *The Journal of the American Medical Association.*

NO MORE THAN 1,500 PERSONS SHOULD BE SERVED BY ONE PHYSICIAN

Until special studies now under way are completed, it has been agreed that, for general medical service, approximately one "effective" physician to fifteen hundred population is the minimum coverage that should be provided, the board of Procurement and Assignment Service for Physicians, Dentists and Veterinarians says in the July 11 issue of *The Journal of the American Medical Association* in answer to the question of how many people in a community can be served by one man. Limited specialists are not included in the above basic figure. It is explained that a special committee of the Procurement and Assignment Service is making studies to serve as a basis for the determination of minimum quotas of medical service which should be retained for the civilian population.

Some of the other questions and answers contained in the special statement are as follows:

"Q. Will the Procurement and Assignment Service protect a doctor from the draft?

"A. The Procurement and Assignment Service was not established to protect anybody from anything. Its function is to enroll physicians, dentists and veterinarians and assign them to the positions in which their services will be of greatest value to the nation in the war emergency. This function obviously parallels the responsibilities of Selective Service, but the officials of the Selective Service have welcomed the cooperation of the Procurement and Assignment Service in dealing with these professional groups. To implement this coperation, General Hershey issued a memorandum to Selective Service boards asking them to secure through the state director of Selective Service the recommendations of the Procurement and Assignment Service wherever they are considering the classification of a physician, dentist or veterinarian. Hence, if a doctor has enrolled with the Procurement and Assignment Service, his Selective Service board will be so advised and a recommendation for his deferment, until his services are needed in a professional capacity, will be made.

"Q. If a physician is physically disqualified for a commission, is he still subject to the draft?

"A. The physical requirements for officers are higher than they are for enlisted men, but under the modified requirements for 'limited service' in the Medical Corps most, if not all, physicians who meet the requirements for enlisted men will be eligible for commissions. If not, the physician concerned should consult the chairman of his State Procurement and Assignment Service Committee relative to service in a war industry or some other essential civilian service.

"Q. In determining the number of physicians needed to care for the civilian population, are rural communities considered on the same basis as larger cities?

"A. A special committee is now working on the determination of minimum quotas of physicians for civilian medical care. In their studies consideration will be given to the density of the population, the ease of transportation, the availability of hospital service and other factors.

"Q. Is the local draft board or the Procurement and Assignment Service to determine whether a doctor is necessary in his local community?

"A. The legal responsibility for deciding whether any individual who is registered with Selective Service shall be given deferment rests with his local Selective Service board. However, General Hershey has directed local boards, when considering the classification of physicians, dentists or veterinarians, to secure the advice of the state committee of the Procurement and Assignment Service as to whether the indvidual under consideration is 'essential' for the care of the civilian population in his community or whether he can be considered available for service elsewhere.

"Q. How many physicians are there in the United States under 35 years of age? Under 45?

"A. Of the 152,923 physicians in private practice in the continental United States, 37,753, or 24.7 per cent, are under 35 years of age; 35,240, or 23.0 per cent, are 35-44 years of age; 26,573, or 17.4 per cent, are 45-54 years of age; 26,076, or 17.1 per cent, are 55-64 years of age; 11,915, or 7.8 per cent, are 65-69 years of age; 8,112, or 5.3 per cent, are 70-74 years of age; and 7,233, or 4.7 per cent, are 75 and over.

"Q. Do you expect the needs of the armed forces to be filled by voluntary enlistment? If not, what is to be the procedure?

"A. It is the firm conviction of the directing board of the Procurement and Assignment Service that the physicians of this country will willingly accept the assignments requested of them in meeting the medical needs of the nation during the war emergency. The executive order of the President establishing the Procurement and Assignment Service states that Mr. McNutt may 'instruct the Agency to draft legislation, which may be necessary to submit to the Congress providing for the involuntary recruitment of medical, dental and veterinary personnel, in the event the exigencies of the national emergency appear to require it.' The directing board, however, has given no thought to such legislation because it is convinced that it will not be necessary."

NATIONAL PHYSICIANS COMMITTEE COMMENDED

At the Atlantic City Session of the American Medical Association the following resolution was adopted by the House of Delegates:

WHEREAS, The physicians of the United States, through the American Medical Association, unselfishly have devoted time, energy and continuously greater ability to building an organizational structure truly nationwide in scope, serving every town, village and hamlet in this country and devoted to the vital task of providing a more effective and a more generally available medical service than is provided anywhere else in the world; and

WHEREAS, These efforts, over a period of nearly one hundred years, have developed American medicine to the point of a general recognition of its worldwide leadership; and

WHEREAS, This unparalleled growth and this unusual effectiveness are the results of the high level of educational requirements, the high standard of ethics that has been maintained and the continuous safeguarding of the relationship between the physician and the patient; and

WHEREAS, We are now passing through a period of worldwide revolutionary change in social, economic and philosophic concepts; and the general public has been and is subjected to a vast educational propaganda, some of which tends to discredit the American doctor and to destroy confidence in the effectiveness of American medicine and in our system of distributing medical care; and

WHEREAS, Preservation of the vital principles responsible for medicine's past progress, its present effectiveness and its ability to serve the public most advantageously make it essential that citizens understand the basic facts in connection with American medicine's methods, growth, achievements, the factors responsible for its superiority and the extent to which the people have been the beneficiaries of the profession's intensive and constructive efforts; therefore be it

Resolved, That we register our approval of the activities of the National Physicians' Committee for the Extension of Medical Service, commend the board of trustees and the management of that institution for the efforts they have made to enlighten the general public in connection with American medicine's methods, progress and achievements and in pointing out that the public has a vital interest in the final result; and be it further

Resolved, That it be declared the policy of this House of Delegates to encourage this effort and similar efforts with identical purposes.

The following resolution dealing with postwar medical planning was adopted by the House of Delegates:

Whereas, The conditions under which physicians have been able to function in the United States provide the factor most nearly responsible for the relatively enviable position which medicine now occupies and which is enabling organized medicine to provide the personnel and professional competence that represent an essential, even vital, contribution to the war effort; and

Whereas, It is a chief responsibility of the profession to do its utmost to continue progressive methods in medical service which will provide opportunity for those physicians who are called to military service to reenter private practice under conditions which will insure continued progress and maximum effectiveness in civilian service; therefore be it

Resolved, That we, the House of Delegates of the American Medical Association, place ourselves officially on record as recognizing our responsibility for making the utmost effort to preserve the elements of independence and freedom of action that will make possible the easy reentry of physicians to civilian practice. To this end we recommend that a definite part of each program of every component member medical society be devoted to a reconsideration of the traditions, the standards, the freedoms and the effects of the absence of restraints and outside controls which have contributed so materially to American medicine's unequaled progress and vast achievements.

CORRESPONDENCE

DR. DENNY APPRECIATES LETTERS FROM MEMBERS

Creve Coeur, Mo.
July 6, 1942.

To the Editor:

Would you be good enough to publish the following letter in a forthcoming issue of The Journal?

"Dear Colleagues:

"Since the Kansas City Session of the Association, which I was unable to attend because of illness, I have received fine letters of encouragement and best wishes from so many of you that I find it impossible to reply to each letter individually and take this opportunity to extend to each of you my sincere thanks for your letters.

"Sincerely,
"R. B. Denny, M.D."

Thanking you for assisting me in this way to express my appreciation to the members of the Association, I am

Sincerely,
R. B. Denny, M.D.

WARN HIGHLY FATAL FUNGOUS DISEASE IS NOT CONFINED TO CALIFORNIA

Coccidioidal granuloma in human beings is a chronic, highly fatal fungous disease affecting the lungs, skin, lymph nodes, bones, meninges, the organs of the chest, and other body tissues. In a paper in *The Journal of the American Medical Association* for July 4 on the incidence of the disease in man and animals, George W. Stiles, M.D., and Charles L. Davis, D.V.M., Denver, warn that, while the disease "has been considered peculiar to California, its appearance both in man and in animals from other localities indicates that the malady is either spreading or has not heretofore been recognized. Coincident with this disease in man, an increase is noted in the number of cases occurring in lower animals. In regions in which man has acquired infection, cattle, dogs, sheep, wild rodents and possibly other animals may harbor the fungus.

"Coccidioidal granuloma appears to be acquired by inhaling spores of the fungus, by cutaneous [skin] infection through wounds or rarely through the gastrointestinal route."

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

Moniteau County Medical Society, December 23, 1941.

Miller County Medical Society, December 26, 1941.

Chariton County Medical Society, December 29, 1941.

Montgomery County Medical Society, January 20, 1942.

Holt County Medical Society, January 26, 1942.

Dallas-Hickory-Polk County Medical Society, January 28, 1942.

Butler County Medical Society, February 21, 1942.

Scott County Medical Society, February 21, 1942.

Cass County Medical Society, March 5, 1942.

Lincoln County Medical Society, March 5, 1942.

Johnson County Medical Society, March 13, 1942.

Macon County Medical Society, March 24, 1942.

Webster County Medical Society, March 28, 1942.

Morgan County Medical Society, April 1, 1942.

Franklin County Medical Society, April 13, 1942.

Barry County Medical Society, April 18, 1942.

DeKalb County Medical Society, May 1, 1942.

Christian County Medical Society, June 4, 1942.

Dent County Medical Society, July 14, 1942.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

TENTH COUNCILOR DISTRICT

ELAM J. NIENSTEDT, SIKESTON, COUNCILOR

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met June 26 at 8:00 p. m. at the St. Francois County Courthouse, Farmington.

In the absence of the president, the Vice-president, Dr. J. P. Yeargain, Irondale, called the meeting to order and asked Dr. H. C. Gaebe, Desloge, to introduce the speaker of the evening.

Dr. Roland M. Klemme, St. Louis, gave an interesting discussion of "Head Injuries," adding personal experiences and advice in an interesting and instructive manner. The talk was well received by the members present and was followed by a prolonged round table discussion with the speaker.

After a short recess the regular business session was inagurated and since there was little old or new business the meeting was soon adjourned.

It was announced that the Society would enter into the summer recess with the next regular meeting to be held on the last Friday in September unless the president saw need for a call meeting.

C. C. AULT, M.D., Secretary.

Six County Medical Society

The Six County Medical Society met at the Dunn Hotel, Sikeston, on June 25 at 7:00 p. m. Dr. G. E. H. Presnell, Sikeston, acting President of the Scott County Medical Society, presided and gave a short welcoming address.

Dr. J. J. Hammond, St. Louis, spoke on "Heart Disease After 45."

Dr. Paul F. Fletcher, St. Louis, discussed the "Sulfonamides" and their application to obstetrics and gynecology.

A round table discussion was general.

A standing vote of thanks was given the guest speakers.

Forty-five were in attendance.

Drs. E. J. Nienstedt and A. D. Martin, Sikeston, served on the arrangement committee.

W. O. FINNEY, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

21st Annual Meeting, San Francisco

President, Mrs. Frank N. Haggard, San Antonio, Texas.

President-Elect, Mrs. Eben J. Carey, Milwaukee Wisconsin.

WOMAN'S AUXILIARY TO THE MISSOURI MEDICAL ASSOCIATION

President, Mrs. Frank L. Davis, St. Louis.
President-Elect, Mrs. R. C. Haynes, Marshall.
Adviser, Dr. Herbert L. Mantz, Kansas City.

The 20th annual convention of the Woman's Auxiliary to the American Medical Association was held in Atlantic City, June 8 to 12. The convention received the announcement of the establishment of permanent headquarters in Chicago with a permanent secretary.

Mrs. Frank N. Haggard, San Antonio, Texas, was installed as president, and Mrs. Eben J. Carey, Milwaukee, Wisconsin, was chosen president-elect. Mrs. Frank L. Davis, St. Louis, was chosen a director for two years.

Those attending from Missouri included Mrs. Frank L. Davis and Mrs. August A. Werner, St. Louis; Mrs. W. E. Martin, Odessa; Mrs. S. P. Simmons, Marshall; Mrs. W. H. Goodson, Liberty, and Mrs. W. H. Goodson, Jr., Kansas City.

The officers of the Woman's Auxiliary to the Missouri State Medical Association for 1942-1943 follow:

President—Mrs. Frank L. Davis, St. Louis.
President-Elect—Mrs. R. C. Haynes, Marshall.
First Vice President—Mrs. Maurice E. Cooper, Columbia.
Second Vice President—Mrs. Frank W. Gillham, Jefferson City.
Third Vice President—Mrs. August A. Werner, St. Louis.
Fourth Vice President—Mrs. Cecil G. Leitch, Kansas City.
Recording Secretary—Mrs. J. B. McCubbin, Fulton.
Corresponding Secretary—Mrs. S. J. King, University City.
Treasurer—Mrs. Fred R. Farthing, Springfield.
Auditor—Mrs. Walter E. Koppenbrink, Higginsville.
Parliamentarian—Mrs. Walter C. G. Kirchner, St. Louis.

DIRECTORS FOR ONE YEAR

Mrs. Charles E. Gilliland, Richmond Heights; Mrs. Martin J. Glaser, St. Louis; Mrs. A. H. Horne, Steelville; Mrs. E. M. Moore, Higginsville; Mrs. R. B. Wray, Nevada.

DIRECTORS FOR TWO YEARS

Mrs. John Aull, Kansas City; Mrs. John J. Byrne, St. Joseph; Mrs. A. J. Crider, Dixon; Mrs. A. M. Estes, Jackson; Mrs. B. T. Koon, Perryville.

Adviser—Dr. Herbert L. Mantz, Kansas City.

CHAIRMEN OF STANDING COMMITTEES

Archives—Mrs. R. C. Haynes, Marshall.
Finance—Mrs. F. J. Berney, St. Joseph.
Hygeia—Mrs. Harry M. Gilkey, Kansas City.
Legislation—Mrs. Luther P. Carlyle, Chula.
Organization—Mrs. Maurice E. Cooper, Columbia.
Bulletin: Editor, Mrs. William H. Goodson, Liberty; circulation manager, Mrs. G. W. Thiele, Kansas City.
Program—Mrs. W. E. Martin, Odessa.
Public Relations—Mrs. F. T. H. Doubler, Springfield.
Revisions—Mrs. David S. Long, Harrisonville.
National Bulletin—Mrs. John J. Byrne, St. Joseph.

BOOK REVIEWS

DIRECTORY OF MEDICAL SPECIALISTS CERTIFIED BY AMERICAN BOARDS. Published for the Advisory Board for Medical Specialties. New York: Columbia University Press. 1942. Price $7.00.

Since the first edition of the "Directory of Medical Specialists" appeared, more than four thousand doctors have taken Board examinations. This second edition therefore contains complete information about more than eighteen thousand certified Diplomates. And not only is the book larger by that many new Diplomates, but also the information about each doctor is more complete than it was before.

This book is not only a directory to medical specialty

but is also an index to a trend in medical development —one which has grown more than 25 per cent in the last two years. Needless to say, the value of this book to a nation at war is tremendous. To Washington officials, to Army and Navy administrators, as well as to local and regional selective service executives, the "Directory of Medical Specialists" is becoming increasingly useful.

A separate section is devoted to each American Board with both a geographic and biographic listing of its Diplomates. In addition, there is a complete alphabetic list of all the Diplomates. In this list there are addresses and indications of specialty certification, while in the geographic section complete biographic information is given. The organization and examination requirements of each of the American Boards are explained in full.

All these features make the Directory unique and invaluable to doctors (specialists or general practitioners), hospitals, social agencies, libraries, medical societies and business organizations. It will help hospital officials pass on the ability of candidates for staff positions. It will provide medical society officers with authoritative lists. Family physicians can form an accurate judgment of the qualifications and ability of specialists in any branch of medicine for the benefit of patients. In short, it has so many practical uses that it is certain to be an indispensable reference tool for thousands of individuals and organizations.

Vaginal Hysterectomy. By James William Kennedy, M.D., F.A.C.S., Surgeon-in-Chief to the Joseph Price Hospital, Philadelphia; Consulting Surgeon to the Norristown, Coatesville and Chambersburg Hospitals, etc., and Archibald Donald Campbell, M.C.C.M., F.R.C.S., (C), F.R.C.O.G., F.A.C.S., Assistant Professor of Obstetrics and Gynecology, McGill University, Montreal, etc. Fully illustrated. Philadelphia: F. A. Davis Company, Publishers. 1942. Price $10.00.

This volume, excellently bound and neatly processed with generously spaced readable type, is a presentation of twin monographs.

Complete technics of the clamp and ligature methods are presented by respective authors. The authors are obviously sincere, unquestionably experienced, occasionally pleasantly quioxtic and passionately devoted to their thesis.

There are scholarly sections on the history of the procedure and anatomy of the region, with well over a hundred carefully executed full page cuts, a few familiar for many years and all adequate.

"Their indications," says Phaneuf in his foreword, "are broader than one finds in the average book of gynecology and one of the reasons they give for a more generous adoption of the procedure is prophylaxis against cancer of the uterus."

"Their indications," says this reviewer, "are startlingly broader." Hence, the book is thought-provoking besides being a complete treatise, which makes it definitely desirable for private purchase for personal pleasure. A. B. S.

Endocrinology. Clinical Application and Treatment. By August A. Werner, M.D., F.A.C.P., Assistant Professor of Internal Medicine, St. Louis University School of Medicine; Associate Physician, St. Mary's Group of Hospitals; Physician, Endocrine Clinic, Desloge Hospital and the Missouri State Hospital No. 4, Farmington, Missouri. Second edition, thoroughly revised. Illustrated with 327 engravings and a colored plate. Philadelphia: Lea & Febiger. 1942. Price $10.00.

A clear and simple discussion of the whole field of endocrinology is necessary and the fact that this book has gone into a second edition indicates that this need has probably been met. In this edition almost every section of the book has been rewritten and much new material has been added but the general scheme of the first edition has been retained.

Basic anatomic, neurologic, physiologic and chemical fundamental data is outlined with considerable skill. A discussion of clinical syndromes follows taking up each gland in turn and special chapters are included on calorimetry, the autonomic nervous system, sterility, lactation, obesity, skin, hair, bones and teeth. The treatment outlined is specific and detailed, but the author is somewhat overenthusiastic about expected results.

This book is addressed to the average practitioner. It is beautifully printed and profusely illustrated. The style is clear, simple and direct. Altogether this book is commended to anyone desiring an introduction to the difficult subject of clinical endocrinology. L. C.

The Modern Treatment of Syphilis. By Joseph Earle Moore, M.D., Associate Professor of Medicine, The Johns Hopkins University, etc. With the Collaboration of Jarold E. Kemp, M.D., Harry Eagle, M.D., Paul Padgett, M.D., and Mary Stewart Goodwin, M.D. Second edition. Springfield, Illinois, and Baltimore, Maryland: Charles C. Thomas. 1941. Price $7.00.

This monograph on syphilis not only has covered the advances in syphilotherapy in the last eight years but also has increased markedly in size and scope. Chapters have been rewritten by experts in the field and chapters have been added so that this book represents the best compedium of knowledge relative to the therapy of syphilis. As before, the book is filled with information but retains its readable style. A new chapter has been added which covers fairly completely to the date of publication the literature on the intensive treatment of early syphilis.

In addition to discussing the treatment of syphilis the book fortunately discusses most of the complex problems dealing with the relationship of the infected individual to his environment and contacts.

This book is practically a necessity for those meeting the problems of antisyphilitic therapy. It also will be welcomed by those who must regulate the environment of the syphilitic patient. It will be a great help to the student and a constant reference book for the more expert. M. N. O.

Management of the Sick Infant and Child. By Langley Porter, B.S., M.D., M.R.C.S. (Eng.), L.R.C.P. (Lond.), Dean Emeritus University of California Medical School and Professor of Medicine, etc., and William E. Carter, M.D., Director of University of California Hospital, Out-Patient Department, etc. Sixth revised edition. St. Louis: The C. V. Mosby Company. 1942. Price $11.50.

The sixth edition of this pediatric text has been thoroughly revised. It has been enlarged with new material taken from the advances in knowledge of pediatrics since publication of the fifth edition. The book is divided into three parts. Part one deals with symptoms and thoroughly discusses such perplexing conditons as vomiting, diarrhea, hemorrhage, fever, pain and convulsions. Part two covers the systemic conditions with chapters on the diseases of the respiratory tract, digestive tract, heart and circulation and the like. In this section behavior, allergy and infectious diseases are discussed. Part three is devoted to methods and is the outstanding part of the book. In this section the authors deal thoroughly with the standard methods and procedures every physician practicing pediatrics must know and perform. The material is clearly written, is well organized and illustrated and is practical.

There are chapters on formulas and recipes, drugs and poisoning. In the chapter on drugs, sulfonamide chemotherapy in relation to the infant and child is taken up in complete detail. In short, practically every subject of importance to the pediatrician is discussed and the book should continue to retain its popularity with both pediatricians and general practitioners.

M. J. H.

ALLERGY IN CLINICAL PRACTICE. By Staff Members of the Cleveland Clinic. Under the Direction of Russell L. Haden, M.D., F.A.C.P., Chief of the Medical Division. Edited by J. Warrick Thomas, M.D., F.A.C.P., Chief of the Section on Allergy. Ninety-two illustrations including fourteen subjects in color. Philadelphia, Montreal, London: J. B. Lippincott Company. 1941.

This is a quite complete and practical text on allergy. The case records at the end of every chapter make the book more valuable than ever to the general man. If he wishes, he can compare some of his puzzling cases with those described in this book. The chapters on contact and atopical dermatitis are of great interest and value. It simplifies dermatology for the general practitioner. Table 1 on the differential characteristics of allergic dermatoses in the chapter on contact dermatitis is particularly of practical value. I have enjoyed reading this book because it brought out clearly the role allergy plays in the practice of medicine and how important it is for the general practitioner to have a working knowledge of allergy. For the physician who wishes to do allergy in his office, the chapter on sensitization studies could be more detailed. "Allergy in Clinical Practice" is a worthwhile addition to every doctor's library.

L. M. S.

A TEXTBOOK OF SURGERY by American Authors. Edited by Frederick Christopher, B.S., M.D., F.A.C.S., Associate Professor of Surgery, Northwestern University Medical School; Chief Surgeon, Evanston (Illinois) Hospital. With 1,538 illustrations on 771 figures. Third edition, completely revised and reset. Philadelphia and London: W. B. Saunders Company. 1942. Price $10.00.

This third edition of Christopher's "Textbook of Surgery" has a list of 195 contributors and the text is divided into forty chapters. It will prove helpful as a reference work for students and practitioners. The chapter on "War Injuries" by Robert I. Harris, Toronto, gives authoritative information. The sulfonamide group of drugs, their indications and uses, have been described by various authors.

W. H. H.

DISEASES OF METABOLISM. Detailed Methods of Diagnosis and Treatment. A Text for the Practitioner. Edited by Garfield G. Duncan, M.D., Chief of Medical Service "B," Pennsylvania Hospital; Associate Professor of Medicine, Jefferson Medical College, Philadelphia, Pennsylvania. Contributors: Walter Bauer, Abraham Cantarow, Garfield George Duncan, Ferdinand Fetter, Cyril Normal Hugh Long, Louis Harry Newburgh, Tom D. Spies, Hugh R. Butt, Tracy Donald Cuttle, Frank Alexander Evans, Friedrich Flemperer, Edward Halton Mason, John Punnell Peters, Leandro Maués Tocantins, and Abraham White. Fully illustrated, including seven plates in color. Philadelphia and London: W. B. Saunders Company. 1942. Price $12.00.

Some of the most important medical problems at present are those related to metabolism and nutrition. There are few fields in which sound information in textbook form is more sorely needed.

This volume is an exhaustive text by an outstanding group of authors. These men are all well known contributors to the literature on metabolic and nutritional disorders and could well speak with authority in their own rights. However, each has been careful to give credit and complete references in all instances.

The material is presented in a fairly concise manner and in sufficient detail to satisfy the more technically minded, yet brief enough to be grasped by the busy practitioner. There are rather detailed chapters on carbohydrate, protein and fat metabolism. The basic physiologico-chemical concepts are presented and developed. The section on mineral metabolism presents the fundamentals of calcium, phosphorus, magnesium, iron, iodine, sodium, chloride and potassium utilization. This is connected nicely with the discussion on water balance.

One of the high lights of the book is a section of about 150 pages on vitamins and avitaminoses by Tom Spies and Hugh Butt. This is lucid, easily read and sound.

F. A. Evans' presentation of the problem of obesity is characterized by his refusal to deviate from logical reasoning. His insistence on the concept of balance of food intake and energy output in the etiology of obesity is quite in accord with accepted practice.

There follow chapters on gout, hyperinsulinism, diabetes insipidus, melituria and finally about 225 well written pages on diabetes mellitus embracing nearly all of the phases of this large problem.

The appendix contains good height, weight and age standards, an excellent chart on food composition and a chart of basal energy requirements.

The indexing is exhaustive, making it an excellent reference volume.

The entire volume is characterized by its close adherence to proven concepts and by careful references and fairly large bibliographies. It can be recommended heartily to all and strongly suggested to all internists.

J. M. R.

CHINESE LESSONS TO WESTERN MEDICINE. A Contribution to Geographical Medicine From the Clinics of Peiping Union Medical College by I. Snapper, Professor and Head of the Department of Medicine, Peiping Union Medical College, Peiping, China. With a Foreword by George R. Minot, Professor of Medicine, Harvard University. 132 Illustrations. New York: Interscience Publishers, Inc. 1941. Price $5.00.

The Rockefeller Foundation has been interested in Chinese medicine since about the time of the start of the first World War. Flexner's biography of Welch gives an interesting account of Welch's trip to China as a member of a commission sent by the Rockefeller Foundation to make recommendations for Chinese medical education. An important outcome of the Foundation's interest is the Peiping Union Medical College.

This school is about twenty years old. Distinguished physicians from the United States and other countries have spent periods of time on the staff of the hospital and the medical school. Among these was Professor Snapper, in the department of medicine. At the present time the greater portion of the staff are Chinese physicians who have been trained in the school itself. It is easy to see, from Dr. Snapper's book, that he has been charmed by life in the medical school. He speaks highly of his associates there. The medical school and hospital appear to be organized much like those in the United States. There are only about twenty-five students every year.

The book is well organized and covers topics in most fields of internal medicine. The reviewer was much impressed by the author's skill in physical diagnosis and his clinical acumen. The author has taken great pains to point out the differences between Chinese and Western medicine. He has included many discussions that have as much bearing on Western as on Chinese medicine.

The book would be of great interest to any physician practicing in America and of inestimable value to any physician beginning practice in China. The reviewer wonders if the army will make use of it. D. J. S.

The Blood Bank and the Technique and Therapeutics of Transfusions. By Robert A. Kilduffe, A.B., A.M., M.D., F.A.S.C.P., Director, Laboratories, Atlantic City Hospital; City Bacteriologist, Atlantic City; Serologist, Municipal Hospital for Contagious Diseases, Atlantic City, etc., and Michael DeBakey, B.S., M.D., M.S., F.A.C.S., Assistant Professor of Surgery, School of Medicine, Tulane University of Louisiana, Visiting Surgeon, Charity Hospital, Touro Infirmary, and Mercy Hospital, New Orleans, etc. With 214 illustrations and one color plate. St. Louis: The C. V. Mosby Company. 1942. Price $7.50.

This timely book on the development and management of blood and plasma banking undoubtedly will appeal to all physicians and clinical pathologists. It deals with the various methods which may be used for the storage and preservation of blood and plasma, most of which have been developed in the last ten years. The completeness of this phase of work is praiseworthy but will at times prove confusing to one trying to select a method for his own use. He will perhaps have to settle on the method which seems simplest to him, and this is perhaps as good a means of selection as any since all of the methods work well in the hands of the originators.

The chapters on indications for blood and plasma transfusions also is well done and perhaps will be the most important part of the book to the clinician who is not primarily interested in the management of the blood or plasma bank.

Technicians will find many interesting developments in the chapter on blood typing for in this chapter the subgroups as developed in the immediate past are discussed.

I feel that the authors have handled a rather difficult subject with clarity and dispatch. R. O. M.

Professional Adjustments. I. By Gene Harrison, A.B., R.N., Educational Director, Druid City Hospital School of Nursing, Tuscaloosa, Alabama. St. Louis: The C. V. Mosby Company. 1941. Price $2.25.

The eleven chapters in the book are devoted to actual living problems of adjustment in a nursing student's life. It is revealed that adjustment to any school of nursing involves the same problems of adjustment as any girl would encounter in any phase of endeavor. The fundamental and modern trends in nursing environment are enumerated and discussed so that the student may gain further knowledge which will assist her in the orientation to her new surroundings. It is pointed out that "accuracy in following instructions is essential" in the school of nursing. The author endeavors to guide the student in her present life on into her future life as a graduate nurse. Throughout the book the student is regarded as an adult and not as a child who is being told what to do at the proper time. This treatment of the student as an immature individual has been a defect in many books on ethics or professional adjustments.

At the beginning of each chapter is found a quotation which can be useful as a pre-thought to the chapter and as an after-thought throughout the life of the student. At the end of each chapter there are a number of problems which are put into the form of questions. There is also found an excellent bibliography for reference readings. These are of value to the student as well as a help to the instructor of professional adjustments. The space given to "Personal Notes" for the reader at the end of each chapter may prove of value to some, but to most of the students it will remain unfilled.

The book is complete as an aid to the freshman student of nursing. It no doubt will make it easier for her to accomplish this new adjustment and to become the well integrated nurse. The material is well organized, easily read and of practical use. It gives assistance in both professional and cultural problems which the student may meet in her nursing career. The instructor as well as the student will enjoy this book. M. L. S.

The Treatment of Infantile Paralysis in the Acute Stage. By Elizabeth Kenny. Minneapolis, Saint Paul: Bruce Publishing Company. 1941.

Sister Kenny has written a book on the treatment of acute infantile paralysis covering 279 pages. Unfortunately many pages are devoted to trying to prove her method better than the so-called orthodox treatment. As a result the reviewer got the impression that the book was written with the intention of confounding the majority of the medical profession.

Sister Kenny has touched on some very new conceptions of the acute stage of infantile paralysis and her treatment is radically different. Her conception of spasm is the reverse of the accepted ideas of infantile paralysis. Her treatment varies in many respects from the recognized treatment. One gets the impression, however, that she does put the affected muscles in physiologic balance and keeps them at rest until muscle power has returned. This is done by pillows and supports, not by braces or casts, which she constantly condemns. Briefly her treatment, as set forth in her book, is to prevent muscle spasm. This is one of the earliest symptoms and is responsible for contractures and deformities. This is accomplished by preventing faulty posture and by the use of hot applications and by carefully supervised exercises. She says, "muscles not affected by the disease can be rendered useless by orthodox methods causing mental alienation of the part." Deformities develop, pain and stiffness are prolonged unnecessarily. Treatment then is directed toward relaxation of spasm, mental awareness is induced by passive movement, coordination is secured by careful muscle training. Muscle function is allowed when mental awareness and coordination have been restored.

The chapters dealing with treatment are fairly complete and are well illustrated. It is too bad that there is no attempt at a scientific explanation, but it is hardly to be expected in a book of this sort.

There seems to be a good deal to Sister Kenny's treatment. It is unfortunate that the book is not a little more direct and that it should be cluttered with so much controversy. A. O'R.

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H. May, M.D., Consulting Ophthalmologist to Bellevue, Mt. Sinai and French Hospitals, New York, etc. Sixteenth edition, revised with the assistance of Charles A. Perera, M.D., Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department of Columbia University, New York. With 387 illustrations including thirty-one plates, with ninety-five colored figures. Baltimore: William Wood and Company. 1939. Price $4.00.

When a book has achieved sixteen editions there is little for a reviewer to say except to express approval. Forty years of usefulness and use constitute real "proof of the pudding." The present sixteenth edition has all of the merits of the previous editions and in addition has due consideration of the many recent developments. Written for students and general practitioners it fills its purpose remarkably well. The descriptions are clear and unusually free of passages which might be misunderstood and the field of ophthalmology is well covered—as well as could be in a single volume. The book can be heartily recommended. R. J. C.

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HYPERPARATHYROIDISM

SIXTY-SEVEN CASES IN TEN YEARS

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Hyperparathyroidism is potentially not a rare disease. In ten years there have been sixty-seven cases proven by operation at the Massachusetts General Hospital. This unparalleled number of cases from one clinic is not quoted boastfully but rather to emphasize the productivity of painstaking diagnosis and planned surgery. The sum and variety of cases is a heritage from certain medical colleagues without whose physiologic wisdom the disease often would not have been diagnosed. Without a specific study of the problems involved in the surgical identification of the offending parathyroid glands the diagnosis could not have been proven. By a combination of diagnostic acumen and improved surgery, the horizon of the disease, hyperparathyroidism, has been broadened.

Hyperparathyroidism is primarily a disease of disordered metabolism, not a bone disease. The patient with the commonest type of this glandular disease has normal bones. Any bone changes are secondary to the disordered metabolism of calcium and phosphorus. Recognition of this fact has resulted in the unprecedented number of cases proven at the Massachusetts General Hospital. The bones are not involved in the milder cases or in those patients with severer degrees of the disease who have had an adequate intake of calcium in their diet. Until the profession at large realizes this secondary relation of the bone disease, most of the cases will remain undiagnosed.

It has been suggested that the number of cases with hyperparathyroidism seen at the Massachusetts General Hospital is due to the fact that patients with this diagnosis are referred from everywhere. This is not true. Parenthetically, out of every four cases referred to the hospital with this diagnosis, three do not have hyperparathyroidism.

The cases of hyperparathyroidism at the Massachusetts General Hospital are divided into groups (table 1). The classic type of bone disease, tumors and cysts, comprises 28 per cent of the total number; the bone disease was the clue to the diagnosis. Another 17 per cent showed bone involvement in the form of diffuse skeletal decalcification but the majority of these were diagnosed because of the concomitant renal stone complication. Fifty-five per cent of the cases had no bone disease demonstrable either by roentgen ray or bone biopsy; attention was called to the disease by the kidney stone.

Table 1. *Hyperparathyroidism—Clinical Types*

Bone Disease	Number	Per Cent
1. Classic	19	28
2. Decalcification	1	2
3. Decalcification and renal stones	10	15
No bone disease		
1. Renal stones	37	55
Total cases	67	

Of the forty-four cases diagnosed at the Massachusetts General Hospital (table 2) only four (9 per cent) had the classic form of the disease. Eight of the forty patients diagnosed by virtue of having kidney stones had some degree of decalcification. Thirty-two cases (73 per cent) had no bone disease. Of the twenty-three cases referred to the Massachusetts General Hospital from elsewhere

Table 2. *Hyperparathyroidism—Where Diagnosed*

Massachusetts General Hospital	Number	Per Cent
1. Classic bone	4	9
2. Decalcification	0	
3. Decalcification and renal stones	8	18
4. Renal alone	32	73
Total cases	44	
Elsewhere		
1. Classic bone	15	65
2. Decalcification	1	4
3. Decalcification and renal stones	2	9
4. Renal alone	5	22
Total cases	23	

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with a presumptive diagnosis of hyperparathyroidism, fifteen (65 per cent) were of the classic type. Only five (22 per cent) had no bone disease.* The large proportion of cases referred with a presumptive diagnosis is of the classic type. If all of the referred cases are disregarded, the classic type forms a small minority and, yet, this is the only type of the disease still being diagnosed generally.

HISTORIC BACKGROUND OF MODERN DIAGNOSIS

The history of the discovery of hyperparathyroidism suggests how the overemphasis on bone disease started. Hyperparathyroidism was not established as a disease entity until 1925. The classic form, von Recklinghausen's disease, had long been known to European pathologists but the associated enlargement of the parathyroid gland had been considered secondary to the bone disease. Mandl,[1] a surgeon of Vienna, was the first actively to challenge this pathologic dictum. He removed a parathyroid tumor from a patient with von Recklinghausen's disease and the bones improved.

Before Mandl published his observation, hyperparathyroidism was discovered in the United States by a different method, by physiologic reasoning. Dubois[2] studied the metabolism of a patient with an obscure bone disease and it behaved like that of a dog injected with parathyroid extract. The patient was sent to Aub, the authority on calcium metabolism, and he confirmed that the disordered calcium and phosphorus metabolism pointed to overactivity of the parathyroid glands.[3] The significance of making the diagnosis by this method was obscured for a time because the diagnosis was not established by operation and correcting the disease. The patient was operated upon in an attempt to find the offending parathyroid gland but the surgeon knew nothing of the pathology of the parathyroids and removed two normal glands which failed to benefit the patient.

Following the discovery of the disease, in Europe by reversal of a pathologic dictum and in this country by physiologic reasoning, a number of cases had been reported by 1932. Some were operated upon successfully. The disease, however, was judged to be rare; it was considered a disease of bone alone since it was believed that the parathyroid hormone acted primarily on bone and any disorder of hormone production must result in changes in the bones.

The second era in the understanding of hyperparathyroidism dawned in 1932. It has been the era in which the importance of the kidney complications as a diagnostic sign has been recognized. The excessive output of calcium by the kidney had been established as part of the pathologic physiology of the disease but attention continued to be focused on the bones. Albright became impressed by the incidence of the lesions of the urinary tract. Between 1926 and 1932, the original American patient, the parathyroid tumor still undiscovered, developed kidney stones and impairment of renal function.[4] A second patient, unsuccessfully operated upon in 1930, subsequently developed kidney stones. A third patient, a young girl, had severe renal disease when first seen. In addition, a review of the literature revealed incidental kidney stones in 80 per cent of the cases reported. Two weeks after Albright started to determine the levels of calcium and phosphorus in the blood on all patients with stones at the Massachusetts General Hospital, a case fulfilling the physiologic requirements of hyperparathyroidism was found. A parathyroid tumor was removed and the patient's metabolism changed to normal. This patient, the first diagnosed by means of the kidney stone complication, case number 5 of this series, also had a moderate degree of diffuse decalcification.* It was not long, however, before patients with renal stones but no bone disease appeared in whom parathyroid overactivity was proven by operation. It was then confirmed that bone involvement was not a requisite of hyperparathyroidism.

DIAGNOSTIC HINTS

How is the diagnosis made? By suspecting it in any patient with bone symptoms and changes, with urinary frequency or stones and, indeed, in anybody with fatigue or lassitude.

The classic form, von Recklinghausen's disease, offers no difficulty in diagnosis. No metabolic observations are necessary. The bone cysts and tumors distributed in rarified bones are clearly visible by roentgen ray and are diagnostic. It must be remembered that the disease is hormonal and that the bone picture is therefore generalized. It must not be confused with the localized benign giant cell tumor or the segmental Albright syndrome[5] which in single areas may give a roentgen ray picture of changes indistinguishable from those produced by hyperparathyroidism.

Any patient presenting calcification in the urinary tract or a history of having passed a stone should be suspected of the disease. Between 10 and 15 per cent of patients with renal stones seen by Dr. Albright and myself proved to have hyperparathyroidism. The hospital statistics are lower than this, we believe because of too cursory an examination. Some cases are missed in the routine of the clinic. In the last two years, four cases have been proven by operation in which previously the diagnosis had been excluded on the basis of insufficient data.

To make the diagnosis in the patient with mild symptoms requires persistence. Suggestive information may be obtained by measuring the output

*The single patient with no renal stones and only mild decalcification was a missionary's wife diagnosed by Dr. S. H. Liu of Peking, China. This was a remarkable diagnosis and was made only by keeping hyperparathyroidism in mind in the differential diagnosis of a patient with bizarre symptoms.

*The cases of hyperparathyroidism at the Massachusetts General Hospital are numbered in the order in which the diagnosis is proven. The same case numbers are used in all publications from this hospital. The original American case on this basis became number 6 in our series.

of calcium by the kidneys using the oxalate buffer solution.[6] The patient should be on a low calcium diet (no milk or milk products, no nuts) for at least three days before collecting a twenty-four hour urine sample. A moderate precipitate of calcium under these conditions points to hyperparathyroidism. For final analysis, accurate chemical determinations are necessary.

The fasting blood levels of calcium and phosphorus must be checked by a laboratory experienced in these determinations. In order to evaluate the calcium level, the serum protein must be measured; the total blood calcium is composed of protein bound as well as ionized calcium. The latter only is elevated in hyperparathyroidism. A low serum protein points to a high ionized calcium if the total level is normal. A persistent low phosphorus is diagnostic even in the absence of an elevated serum calcium provided the excretion of calcium in the urine is increased. The urinary excretion may have to be determined for many successive days with the patient on a standard neutral low calcium diet.

In women there may be a cyclic variation in the excretion of calcium through the kidneys. In one of our patients the excretion was increased only around the time of ovulation. Had the excretion been examined only near menstruation, the diagnosis would not have been made.

One word for the future, there must be patients with hyperparathyroidism who have neither the bone nor kidney complication. Such a diagnosis has not yet been made but will be. This type of the disease must exist since 20 per cent of the patients with the classic type of bone disease have no kidney involvement. These patients with no bone and no kidney disease should in theory suffer those symptoms due to the abnormal electrolyte concentrations. The elevated serum calcium is associated with muscular relaxation and patients with hyperparathyroidism often appreciate only after operative relief of the disease that they had been abnormally tired and relaxed. There are also bizarre gastrointestinal symptoms explainable on the same basis. Many patients have complained of indigestion and some have noticed a bottomless, mild hunger which is unrelieved by any quantity of food. With the hypercalcinuria there may be a diuresis. Two of our patients had been thought to have diabetes insipidus.

TREATMENT

Three forms of treatment have been suggested for hyperparathyroidism: medical, irradiation and surgical. Medical treatment by a high calcium diet replenishes empty bones but ruins kidneys and does not affect the disease process. It has of course been abandoned. Treatment of the kidney complication by low calcium diet leaves the bones vulnerable. Such treatment is used only as an adjunct to surgical management.

Roentgen ray irradiation of the offending parathyroid glands is likewise apparently ineffective in halting the disease process. There are several reports in the literature of benefit by roentgen ray[7] but sufficient data of calcium and phosphorus metabolism are not included for proper evaluation of the cases. The clinical improvement reported could have been due to diet alone.

Five of our series of cases have received adequate roentgen ray treatment to the adenoma or hyperplastic glands before operation. In none was there a demonstrable change in the abnormal calcium metabolism. The most recent of these cases is reported in detail not only because the irradiation did not affect the activity of the adenoma but also to call attention to the occurrence of parathyroid glands in the mediastinum.

CASE REPORT

Case 67. A woman, aged 58, was referred to this hospital in August 1941, by Drs. Cogan and Naurison of Springfield, Massachusetts, with the diagnosis of hyperparathyroidism, post-irradiation and anemia. In October 1939, she sustained a fracture of the right humerus following a minor injury. The roentgen ray examiner made a diagnosis of hyperparathyrodism. She received roentgen ray treatment as follows: a total of 3,490 r. to the right and left side of the "parathyroid regions" of the neck; 1,613 r. to the left femur and 1,831 r. to the right humerus. In February 1940, roentgenograms were reported to show no change in the pelvic bones. Around the lesion in the right humerus there was thickening of the cortex and also some thickening of the trabeculae of the tumor mass. In June 1940, there was no further change. In July 1940, she first visited the referring doctors who took the first blood for study. The calcium was 11.0 mg., phosphorus 3.5 mg., phosphatase 1.5 units, hemoglobin 55 per cent, red blood cells 2.6 million, white blood cells, 3,300, mean corpuscular volume 1.1

It was concluded, because of the normal calcium and phosphorus levels, that the disease had been arrested. Accordingly, dicalcium phosphate and vitamin D were given and the skeletal aches became less pronounced. Weakness, fatigability and shortness of breath, however, increased and because of a progressive anemia she was referred for further study.

Table 3. *Case 67. Blood Calcium, Phosphorus and Phosphatase Determinations Before and After Irradiation Therapy and Operation*

	Calcium	Phosphorus	Phosphatase
Oct. 6 to Oct. 18, 1939	X-ray therapy to neck, totalling 4,690 r.		
June 29, 1940 plus July, 1940	11.0 mg.*	3.5 mg.*	1.5 units*
Sept. 5, 1941	14.0	1.5	5.4
Sept. 8, 1941	14.0	1.7	5.6
Sept. 23 to Oct. 4, 1941	X-ray therapy, eight treatments centered on anterior mediastinum, totalling 2,400 r.		
Sept. 24, 1941	13.8	1.5	4.6
Sept. 26, 1941	13.6	1.6	4.5
Oct. 2, 1941	13.6	1.9	4.1
Oct. 7, 1941	13.3	2.1	3.7
Oct. 21, 1941	13.3	1.8	4.0
Nov. 25, 1941	13.5	1.5	6.3
Jan. 10, 1942	14.9	1.9	5.6
Jan. 23, 1942	14.5	1.8	6.0
Feb. 10, 1942	Excision parathyroid adenoma from anterior mediastinum.		
Feb. 12, 1942	9.3	2.2	4.2
Feb. 16, 1942	8.1	2.2	4.4
Feb. 21, 1942	8.6	2.7	
April 18, 1942	10.0	3.4	4.7

*Chemical determination not done at the Massachusetts General Hospital.

On entry at this hospital, the alternative diagnosis of multiple myeloma was entertained by some. She had a palpable spleen in addition to a severe anemia. The hemoglobin was 7.9 gm., red blood cells 2.3 million and the reticulocytes 4.2 per cent. No Bence-Jones protein was found on repeated examinations. In addition to the data given in table 3, the serum protein was 6.8 per cent, albumin 4.7 per cent, globulin 2.1 per cent, ratio 2.2 per cent, the nonprotein nitrogen was 26 mg. per cent. There was 30 per cent bromsulfalein retention; 17-ketosteroid excretion was 3.3 mg. per twenty-four hours. The urine showed a heavy precipitate of calcium. The stools were normal. Basal metabolic rate was plus 13.

The roentgen ray examination of the entire skeleton showed diffuse lesions characteristic of classic hyperparathyroidism. There was a small stone in the left kidney, a larger one in the gallbladder. Anteroposterior and lateral views of the chest showed a 6 cm. diameter tumor in the anterior mediastinum (fig. 1).

A piece of a cyst wall in the left iliac crest was removed for biopsy. Osteitis fibrosa was found.

The patient obviously had active hyperparathyroidism. It was felt that since the mass in the anterior mediastinum was undoubtedly the parathyroid tumor causing her disease, this was the case per excellence to treat with irradiation. It had been felt that perhaps in the other cases treated with irradiation at this hospital that an insufficient amount had reached the actual tumor. Under fluoroscopic control, therefore, irradiation was centered on the mediastinal mass anteriorly and posteriorly. A total of 2,400 r. was given.



Fig. 1. Case 67. Lateral roentgenogram of chest. The large tumor mass, which proved to be neurofibroma, is visualized in the anterior mediastinum behind the upper sternum and above the cardiac auricle. The parathyroid tumor is not definitely outlined but probably accounted for part of the shadow seen above the neurofibroma and behind the manubrium.

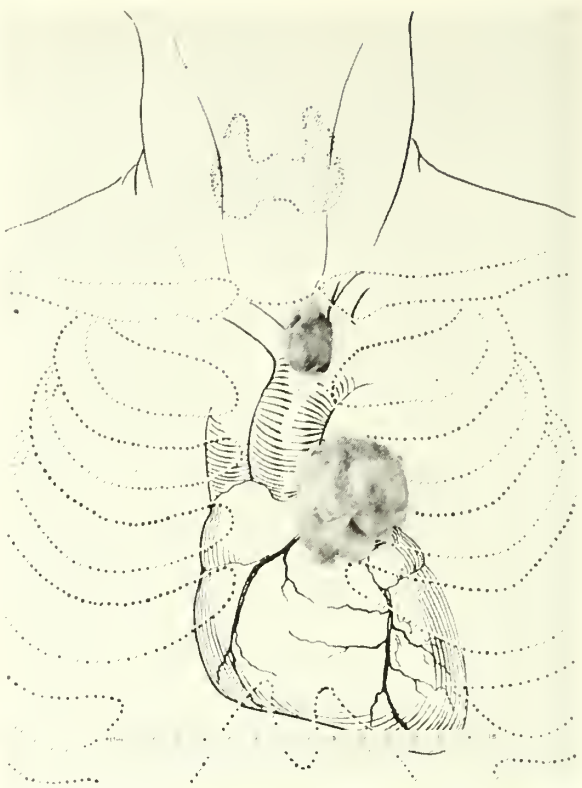


Fig. 2. Case 67. The parathyroid adenoma and the larger neurofibroma photographed on a diagram in the approximate position in which found at operation.

The patient's symptoms and calcium and phosphorus metabolism were unchanged (table 3). Accordingly it was decided to remove the parathyroid tumor by operation.

On February 10, 1942, the anterior mediastinum was opened by splitting the sternum. The first stage operation, exploration of the neck, was not performed because what was thought to be the parathyroid tumor was seen by roentgen ray in the mediastinum. Immediately beneath the sternum in front of the right side of the ascending aorta at the level of the first interspace was a parathyroid adenoma measuring 2.3 by 2 by 1 cm. It lay within the thymic capsule with thymus tissue above and below it. The tumor identified by roentgen ray was considerably larger, measuring 4 by 4 by 2 cm. It was found below the parathyroid tumor and to the left of the aorta. It was firm, almost hard, in contrast to the soft parathyroid tumor. It was also glistening white instead of the dull green-brown of the parathyroid. Both tumors were resected (fig. 2). Microscopic examination confirmed that the first was a parathyroid adenoma; the second was a neurofibroma. There was no morphologic evidence of any effect from the irradiation in the parathyroid.

Review with the roentgen ray department of the position of the two tumors revealed that the fields irradiated included both. By great good fortune this patient was one of the group of 10 per cent whose parathyroid tumors have been found within the anterior mediastinum, good fortune for academic reasons because the roentgen ray treatment did reach it and good fortune for the patient because she was spared exploration of the neck at a second operation.

The postoperative course was uneventful. The patient showed the anticipated metabolic changes (table 3). There was only transient tetany, fitting with the low phosphatase level.[8] The calcium and phosphorus

levels returned to normal. The urine calcium diminished to a trace. She was started on stilbestrol by mouth in the hope of stimulating the formation of bone matrix.

SUMMARY

A typical case of the classic type of hyperparathyroidism was given roentgen ray treatment of the neck at another hospital. Bones were also irradiated locally. Improvement was reported in some of the bones. On entry to this hospital, the diesase was found to be active. A tumor was disclosed by roentgen ray in the anterior mediastinum. This was irradiated with 2,400 r. Four months elapsed and no objective metabolic signs of improvement had occurred. At operation a parathyroid tumor was removed from the anterior mediastinum; it lay within the field of irradiation. The conclusion is that the irradiation was ineffectual in reducing the activity of the parathyroid adenoma.

The treatment of hyperparathyroidism is surgical. This treatment must be precise to meet the challenge of the diagnostician. Two cases have been reported in which the diagnosis is unquestionable and yet in which no parathyroid tumor had so far been found.[9] Nine patients have been referred to the Massachusetts General Hospital for further operation following unsuccessful explorations elsewhere. The surgical problem in these nine cases has been the peculiar position of the tumor. All of them were large tumors and from the point of view of size alone they should not have been difficult to find.

The problem in the surgery of hyperparathyroidism involves the site as well as the size of the tumor. Size will become increasingly important as more cases are diagnosed. Milder cases will be diagnosed and the milder the case, the smaller the tumor. To prevent surgical failure the surgeon must appreciate the peculiarities of parathyroid surgery.

A knowledge of the regional anatomy of the neck is not sufficient for parathyroid surgery. The problems are peculiar to the anatomy and physiology of the parathyroid glands. Special training is needed; the technical skill adequate for successful extirpation of the thyroid gland is not sufficient.

The surgeon must train his eye to distinguish the varieties of parathyroid tissue. He must also learn the regions in which they are to be found. The parathyroids lie not only in the neck around the thyroids but also in the mediastinum. By plotting the position in which parathyroid tumors and uninvolved parathyroid glands have been uncovered, I have come to realize the widespread distribution of parathyroid tissue.[10]

The parathyroid glands, adenomatous, hyperplastic and uninvolved glands, of the sixty-seven cases of hyperparathyroidism have been found all the way from the larynx to the heart. The highest tumor was 2 cm. above the upper pole of the thyroid; the lowest was resting on the top of the right auricle in front of the pericardium. (Fig. 3.)

This widespread distribution is due in large measure to the embryology of these glands. The upper two glands which develop along with the lateral thyroid lobes in their final position rest somewhere near the thyroid tissue. They may get caught in a thyroid sulcus or wander off behind the trachea or the esophagus. The lower two glands develop with the thymus gland from a higher branchial cleft. In their descent in the neck, they may drop off anywhere. Usually they stop near the lower thyroid pole but 10 per cent of the time they stick with the thymus and finally rest in the anterior mediastinum. They may be still incorporated within the thymic capsule.

The position of enlarged parathyroid glands is influenced by pressure of surrounding organs, the act of swallowing and the negative pressure of the thorax. Parathyroid glands have no firm fibrous attachments like the thyroid. They hang by their vessels in areolar tissue and are displaced readily. The displacement is apparently downward. If placed behind the thyroid, they may catch on the inferior thyroid vessels, straddling the vessels just like a saddle on a horse's back, or they may descend into the posterior mediastinum. If placed anteriorly, they are drawn into the anterior mediastinum.

The surgeon must learn to recognize five types of glands: (1) The normal gland: With age the fat content changes; since the color depends upon the proportion of brown parathyroid cells to yellow

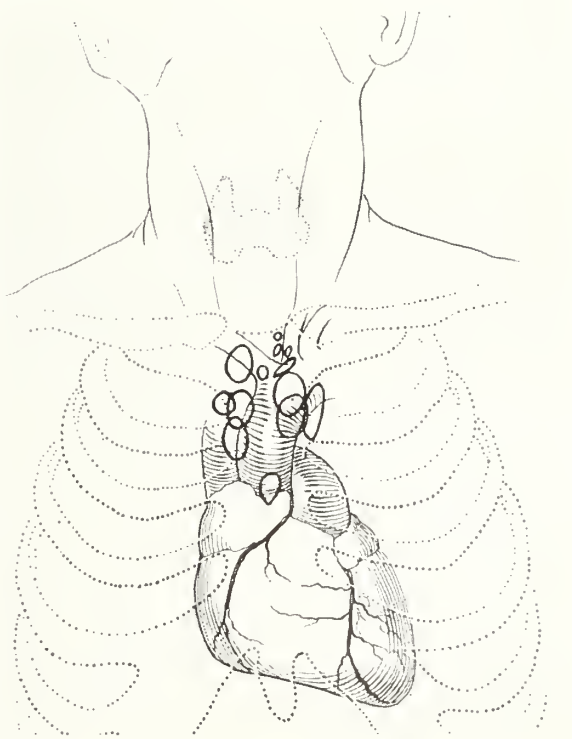


Fig. 3. The position and size of the parathyroid adenomas removed from the anterior mediastinum of thirteen cases of this series.

fat, the eolor of the normal varies. Size and shape are grossly irregular. (2) Adenomas: Thcy eontain no fat and therefore are browner. Their sizc has varied from a pin head, less than 3 mm. in diameter, to hen's egg size. (3) The hyperplastic gland: Diffuse hyperplasia involving all of the parathyroid tissue present oeeurs as a primary disease. These glands are a deeper brown, grossly more irregular, with sulcuses, than the adenomas. Seven of this series of eases had this type of the disease.* (4) The fourth type of gland is the seeondary hyperplasia due to a primary kidney disease or vitamin D deficieney. These glands, smooth, regular and bulbous, are a lighter color than the primary hyperplastie ones. (5) Finally, the "uninvolved" glands: In the presence of a hyperaetive adenoma, the other glands undergo an atrophy of disuse. This atrophy affects only the epithelial eells, the proportion of fat increasing; the eolor is therefore yellower and may be essentially that of the surrounding fat. They can be recognized only by their strueture with capsule and fine vessels. This atrophy accounts for the greater diffieulty of recognizing the uninvolved glands of hyperparathyroidism than the normal glands present in the patient with thyrotoxieosis. This is one of the reasons why experienee with the thyroid does not eonstitute adequate training for parathyroid operations.

Delieacy of teehnic is essential to the diselosure of parathyroid tissue. Haste and inadequate hemostasis only suceeed in beclouding what the surgeon seeks.

It is now our praetiee to divide the operation of parathyroideetomy into two stages. In one, usually the first, the neck and posterior mediastinum are explored. If the offending gland (or glands) are not diselosed, the anterior mediastinum is searched at another operation. The anterior mediastinum cannot be visualized from the neck ineision sinee the eavity lies at a right angle to the surgeon's line of vision. Blind dissection with fingers cannot disclose one of the minute soft parathyroid tumors.[10] Division of the sternum with direet visualization is essential. This has to be done with all the care of any open thoraeie operation.

When a hyperplastie gland is uncovered, all four parathyroid glands must be found and a subtotal parathyroidectomy done. Total removal of three and subtotal reseetion of the fourth usually is indicated, depending upon the size of the various glands.

When an adenoma is diselosed, the surgeon must deeide whether further seareh should be made; five of our eases have had two adenomas. The deeision is made on the basis of size of the adenoma found and the degree of elevation of the blood caleium level. The higher the ealcium, the greater the weight of parathyroid tissue to be found. If the first adenoma is too small, look for a seeond.

*Hyperparathyroidism is the reverse of hyperthyroidism in disease types. Hyperthyroidism due to a single adenoma is rare, yet it is the common entity in hyperparathyroidism. Hyperplasia is the common pathologic type in hyperthyroidism, relatively uncommon in parathyroid disease.

One warning is never reseet an uninvolved gland. It will do the patient no good and if the patient should have two adenomas, it may leave him with too little parathyroid tissue for normal funetion.

SUMMARY

The number of eases of hyperparathyroidism proven at the Massachusetts General Hospital in ten years is due to the appreeiation that the disease is one primarily of metabolism, not of bone. The diagnosis in the classie bone form is made readily but it is the rare form. The commonest type has no bone involvement. The kidney stone eomplication offers the most frequent presenting symptom. No patient should leave the hospital with a diagnosis of renal caleulus unless "hyperparathyroidism excluded" ean be appended. In mild eases, the diagnosis is made only with painstaking effort.

Treatment by irradiation has failed to relieve the disease. A ease in point is reported in detail.

The only effective and safe treatment is surgical. The requirements and pitfalls of this treatment have been reviewed.

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"Sugar rationing and new emphasis on weight reduction have doubtless increased the use of saccharin for sweetening purposes," *The Journal of the American Medical Association* for July 25 says. "Renewed interest in the possible harmful effect of this substance is an apparent corollary. Earlier investigations of saccharin, however, have failed to reveal dangerous sideactions except from extremely large doses. Likewise the evidence does not reveal any reason why saccharin cannot be used continuously in average sweetening doses for an indefinite period. Many patients have taken saccharin for years without harmful effect."

PROTRUSION OF THE NUCLEUS PULPOSUS AND OTHER CAUSES OF LUMBOSACRAL NERVE ROOT PAIN

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It is a striking fact that, although the spinal cord may be crushed, cut or displaced without even discomfort to the patient, the slightest compression of or traction on one of the sensory nerve roots which enter the cord will produce agonizing pain. Such pain usually is recognized easily as nerve root pain because it follows the segmental distribution of one or more spinal nerves. Further, it is often (but not always) accompanied by distortion or loss of sensation in the area involved by the pain.

It is well to emphasize that all nerve root pain can be relieved if its severity justifies one of several neurosurgical procedures.

Today, I wish to confine my discussion to some of the causes of nerve root pain in the lumbosacral area, particularly that resulting from rupture of the intervertebral disk with protrusion of the nucleus pulposus. An appendix of illustrative cases is also included.

RUPTURED INTERVERTEBRAL DISK

The problem of "sciatica" has perplexed surgeons for many, many years. It has been ascribed to innumerable causes (sacro-iliac strain, sciatic neuritis, lumbosacral arthritis, spondylolisthesis, to name only a few) and has been treated by innumerable surgical and orthopedic procedures. Among these therapeutic methods have been spinal fusion, sacro-iliac fusion, section of the tensor fasciae latae tendon, injections into the epidural space, injections of the sciatic nerve and many manipulative procedures.

It remained for Mixter and Barr[1, 2, 3] and their associates to prove conclusively in 1934 that a very high percentage of cases of sciatica were due to a simple mechanical compression of nerve roots by a mass of cartilage herniated from an intervertebral disk. It should be mentioned that many authors previously had described these lesions in isolated cases, but their common association with sciatica had not been recognized generally.

Since the first publications of Mixter and Barr, many authors have written on the subject and the operative removal of herniated cartilages has become a common procedure in most neurosurgic clinics. Love,[4, 5] Semmes,[6] Bradford and Spurling,[7] Naffziger,[8] Chamberlain[9] and Dandy[10] have published especially valuable contributions.

Mechanism.—The intervertebral disk consists of a soft central cushion of stringy cartilage, the nucleus pulposus, and an outer containing ring of firm, smooth cartilage, the annulus fibrosus. These disks serve as resilient shock absorbers which bear the entire weight of the body above their respective levels. The emerging nerve roots course obliquely downward over the posterolateral aspects of the disks, protected laterally by the ligamenta flava, and make their exits from the spinal canal through the intervertebral foramina.

If, usually as the result of trauma (sometimes very slight), the annulus fibrosus is ruptured, the soft central cartilage is extruded and compresses the adjacent nerve root against the overlying ligamentum flavum or the borders of the intervertebral foramen.

Any of the intervertebral disks may be ruptured, but at least 90 per cent of ruptures occur at either the fourth or fifth lumbar intervertebral space, and my discussion will be confined to these cases.

Symptomatology.—The classical clinical picture is a history of trauma or severe strain followed by recurrent attacks of violent sciatic pain. The pain radiates from the region of the hip down the posterior thigh and lateral leg into the heel or dorsum of the foot. There may or may not be lumbar back pain. There is very likely to be paresthesia in the area of the foot which is involved by the pain. The pain usually is made worse by coughing or sneezing and is most severe when the patient is standing or sitting.

On examination, there are three outstanding findings: pain on elevation of the leg in extension, made worse when the foot is flexed at the ankle (Lasegue's sign), sluggish or absent ankle jerk and diminished sensation in some portion of the dorsum of the foot. If sensation is impaired at the base of the great toe and back across the top of the foot, the lesion is more likely to be at the fourth interspace. If the sensory loss is on the lateral aspect of the foot, it is probably at the fifth interspace. In many cases, there is rigidity of the lumbar paraspinal muscles and, often, a compensatory scoliosis with convexity toward the affected side is present. (See cases 1, 2 and 3.)

Spinal fluid findings are not often of diagnostic value although the total protein content is sometimes elevated. Lumbar puncture should be done, however, to rule out intradural lesions.

Roentgenograms of the spine may or may not show narrowing of the involved intervertebral space. The most valuable radiographic view is a lateral exposure centered on the lumbosacral junction with the patient in the erect position.

Special Diagnostic Procedures.—A few years ago, it was considered imperative to confirm the diagnosis by contrast myelography after intrathecal injection of iodized oil (lipiodol). There are two strong objections to this procedure: the results are frequently misleading and there is risk of medicolegal difficulties resulting from permanent retention of the foreign substance in the spinal canal, its occasional entrance into the cranial chamber and the mild irritative process which it sometimes sets up (all of the oil can rarely be removed even

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at open operation). More recently, air myelography has been employed widely and, in experienced hands, it is very valuable. However, small cartilaginous protrusions may easily be overlooked by this method.

Furthermore, with increasing experience, it has become possible to select those cases which are suitable for operation on the basis of clinical findings alone and to be independent of special procedures in the great majority of cases.

Conservative Treatment.—In the Vanderbilt University Hospital, these cases are handled in collaboration with the orthopedic service and it is the custom, with few exceptions, to operate on only those cases which have failed to respond to prolonged and patient conservative therapy. This policy, as well as the type of conservative therapy employed, is based upon the demonstrable fact that, when the lumbar spine is flexed, the posterior portion of the intervertebral space is opened more widely and the herniated cartilage may be spontaneously reduced. This phenomenon has been demonstrated at operation by Fay.[11]

Therefore, in the clinic of the hospital, these patients are first put to bed in a position of lumbar flexion for a period of at least three weeks, preferably in the hospital. In a surprisingly large number of cases, the pain disappears. If it does, the patient is put in a plaster jacket, still in marked lumbar flexion, for an additional period of from six to eight weeks during which time he may be up and about.

This conservative attitude toward the problem has been criticized by some neurosurgeons who believe that the loss of time in conservative therapy and the possibility of recurrence in spite of it make operation on all cases advisable. In rebuttal, it may be said that many cases remain well permanently, or for many years, and that, in such cases, the risk (admittedly very small), suffering and expense of an unnecessary operation are avoided by employing conservative methods.

Operative Treatment.—If the diagnosis of protruded cartilage is firmly established, the following are considered to be indications for operation: (1) failure to respond to conservative therapy; (2) early recurrence after conservative therapy; (3) a history of repeated attacks with intervening remissions over a period of many years.

The operation, which formerly involved an extensive bilateral laminectomy, is now a relatively simple procedure. The muscles are stripped from the spine of the vertebra above the involved disk and from the two laminae, on the affected side only. Small semicircular areas of bone above and below the interspace are removed with rongeurs or a sinus punch (even this bone removal is not necessary if the interlaminal space is unusually wide). The ligamentum flavum is cut away, bringing into view the shiny white surface of the cartilaginous protrusion, covered usually by the thin, stretched, outer covering of the annulus fibrosus. The nerve root usually is stretched over the protrusion and is retracted gently. The sheath overlying the cartilage is incised and the stringy nucleus pulposus begins to extrude. It is seized with a clamp and pulled out. Often additional loose bits of cartilage will be found within the cavity thus opened up and it is essential that these be removed.

Occasionally, as pointed out by Dandy,[10] the fibrous sheath will have been destroyed and the nuclear cartilage will have been long since extruded and will lie more or less free under the nerve root. In such cases, the cartilage already may be seminecrotic with a brownish color and may be overlooked unless great care is taken.

Until recently, some neurosurgeons have felt that the removal of a protruded nucleus pulposus should be followed by spinal fusion. This viewpoint is scarcely tenable now, however, since the operative procedure involves a minimal removal of bone and virtually no weakening of the spinal column. Even those engaged in heavy labor may return to work in a short time without risk of further injury.

Pitfalls.—It must be reiterated that the problem of sciatica is still, as in the past, by no means entirely solved. Many mistakes have been and still are being made. Since the awakening of widespread interest in the intervertebral disk, it is necessary to guard against overenthusiasm and to avoid certain common sources of error.

First, it is obvious that the diagnosis must be made correctly. One is by no means entitled to assume that all cases of sciatica are the result of a herniated nucleus, although it is becoming obvious that this lesion is responsible for a large percentage of cases. Failure to carry out painstaking and complete study of every case is unjustifiable. In this connection, it is important to remember that low back pain constitutes one of the most vexing of all medico-legal problems. Who can say that a given patient does not have the pain he claims to have? The compensation neurosis has one of its favorite sites in the low back. For this reason, the diagnosis should be made only when both history and objective findings are typical.

Secondly, it is wise to be certain that the patient cannot be relieved without operation.

Thirdly, it sometimes occurs that, when no protrusion is found at operation, the herniation has been reduced by the position of flexion in which the operation is most easily performed. In such instances, the spine should be extended and another search instituted.

Fourthly, it is my belief that both the fourth and fifth interspaces should be explored at nearly all operations for protruded nucleus pulposus because more than one herniation may exist. Further, the neurologic findings do not always prove conclusively which of the two disks is involved.

Results of Operation.—Removal of the protruded cartilage results in complete relief of pain in nearly all cases. Occasionally paresthesias persist for

some time and the sensory and reflex impairment may remain permanently (though without discomfort or disability). Rare instances of recurrence, doubtless due to breaking away of additional loose cartilage, have been reported.

In a few instances, in spite of every precaution, no protrusion of cartilage will be discovered. It is surprising that, in many cases, complete relief will be obtained from the exploratory operation. The explanation for this is not clear. Such cases were formerly blamed on hypertrophy of the ligamentum flavum (Naffziger,[8] Spurling[12]) but it is now very doubtful if this is the true cause. However, it may well be true that removal of the ligamentum flavum may have a decompressive effect on a nerve which is compressed by some other underlying cause. (See case 4.)

OTHER CAUSES OF LUMBOSACRAL NERVE ROOT PAIN

The nerve roots of the cauda equina may be irritated by numerous other lesions, particularly by intradural and extradural tumors, by fractures and by certain other less common lesions.

Tumors of the Conus Medullaris and Cauda Equina.—Intramedullary tumors rarely cause pain and almost never radicular pain. Extramedullary tumors, on the other hand, usually arise from the sheaths of nerves (neurofibromas) or from the leptomeninges (meningiomas) and, by their position, cause severe radicular pain in nearly all cases. Ependymomas of the filum terminale also may cause severe irritation of the roots of the cauda equina. If the roots of the lower lumbar and upper sacral roots are involved, the pain will have a sciatic distribution and the case will, at first glance, be very similar to that of a ruptured intervertebral disk. Careful study, however, usually will demonstrate many differences.

Tumors produce more marked objective loss of sensation and usually motor impairment with muscle atrophy and loss of reflexes. These findings are apt to be bilateral (as the pain also may be). Bladder function frequently is impaired, usually with retention of urine, but sometimes also with incontinence. Spinal puncture below the tumor often demonstrates a partial or complete block of the spinal canal and the total protein content of the fluid is elevated markedly. Roentgenograms may show erosion of one or more of the pedicles at the level of the tumor.

Extramedullary tumors are among the most favorable lesions with which the neurosurgeon has to deal. Most are benign neoplasms and can be removed completely with no serious damage to cord or cauda equina. Immediate relief of pain and early recovery of neurologic function occurs in a high percentage of cases. (See cases 5 and 6.)

Extradural Tumors.—Tumors impinging upon the spinal canal from outside the dura very frequently cause nerve root pain. They arise most frequently from the bone of the vertebral bodies and the most common tumor types are metastatic carcinoma and myeloma. If the cord or cauda is compressed markedly, all of the signs of tumor mentioned previously may be present. In early cases, however, pain may be the only symptom and neurologic findings may be entirely absent. Roentgenologic demonstration of a destructive lesion in the bone is the most reliable proof of the nature of the disorder. In some cases, however, even this may not be present and the surgeon may have the misfortune, as I recently did, of carrying out a negative intraspinal exploration only to discover months later that a myeloma was irritating nerve roots in the sacral plexus. (See case 7.) Needless to say, careful search for a primary focus of carcinoma is essential in all cases. The uterus and prostate, respectively, are the most common primary sites in the two sexes.

Even though one cannot cure these destructive tumors by operative removal, it is often advisable to decompress the cord or cauda equina for the relief of pain, paralysis anesthesia and bladder symptoms. Subsequently, all of the myelomas and most of the carcinomas should be given radiation therapy, to which the solitary spinal myelomas, at least, respond fairly well.

Fractures.—Fractures of the lumbar spine, particularly those in which the laminae as well as the bodies of the vertebrae are fractured, often result in agonizing nerve root pain which may persist permanently unless surgically relieved. Roots may be compressed directly by bone fragments at the intervertebral foramina or may be involved in contracting cicatricial tissue, with delayed development of pain. In some instances, there is no immediate loss of neurologic function but later appearance of pain accompanied or followed by paresthesia, hyperesthesia or anesthesia and sometimes loss or impairment of motor function as well.

Remarkable reduction by traction and manipulation may often be obtained but this method should be employed with great caution if there are fractures of the laminae. Immediate decompressive laminectomy is indicated only if there is progressive, incomplete loss of neurologic function and complete block of spinal fluid circulation. In other words, laminectomy is of value only to relieve compression and should not be employed unless definite proof of continuing compression is present.

On the other hand, the excruciating, continuing root pain is not usually amenable to local attack but may be relieved completely by section of the contralateral anterolateral spinothalamic tract (chordotomy) in the mid-dorsal region of the spinal cord. This procedure completely abolishes pain and temperature sensibilities below the level of operation but leaves tactile and deep sensation intact. (See case 8.)

It is of great interest that, after operation, such patients often will state that they have intermittent peculiar sensations which are "in the same place

and exactly like my old pains except that they don't hurt."

Uncommon Causes.—Certain other lesions occasionally cause nerve root irritation.

Syringomyelia of the conus medullaris may produce torsion or tension on nerve roots if the cyst is very large. It is usually mistaken for cord tumor, but most of the symptoms are relieved by simple evacuation of the cyst. (See case 9.)

Chronic arachnoiditis may irritate nerve roots either by cyst formation or by contracture of adhesive bands. Such an inflammatory process usually follows a previous leptomeningitis, but sometimes occurs without known preexisting infection. In the past, it was widely attributed to syphilis but it has been shown that syphilitic infection coexists in only a small percentage of reported cases. The diagnosis usually depends upon widely scattered symptoms due to extensive involvement of the arachnoid in various parts of the spinal canal. Contrast myelography is often of value. Operative neurolysis may be followed by no improvement or early return of symptoms. Chordotomy may be necessary for relief of pain.

Spina bifida occulta sometimes is accompanied by other bony and soft-tissue anomalies which produce nerve root symptoms only after adult life has been reached. For example, a man who had a spina bifida occulta developed low back pain, sciatica and progressive atrophy of the calf muscles on the right at the age of 20. These symptoms persisted for the thirteen years prior to operation. He had a malformation of the inferior articular facet of the fifth lumbar vertebra on the right. In addition, at operation, there was a large intradural mass composed of fatty tissue histologically resembling a lipoma. Fortunately, it was possible to remove the mass without significant damage to the compressed nerve roots. The atrophy has remained without further progression and the pain has not recurred. (See case 10.)

One often hears low back and sciatic pain ascribed to such causes as spinal arthritis, sacro-iliac disease, spondylolisthesis and similar disorders. Although such diseases undoubtedly exist and although they may cause back ache, it is very doubtful if they ever cause true nerve root pain of the type discussed in this paper.

The problem of lumbosacral nerve root pain and its various common causes have been discussed.

Particular reference has been made to protrusion of the nucleus pulposus of which the following aspects were considered: mechanism, symptomatology, special diagnostic procedures, conservative treatment, operative treatment, pitfalls and results of operation.

The following additional causes of lumbosacral nerve root pain have been discussed more briefly: tumors of the cauda equina and conus medullaris, tumors of bone, fractures of the lumbar spine, syringomyelia, arachnoiditis and certain congenital lesions.

Brief reports of ten illustrative cases are appended.

REPORT OF CASES

Case 1. M. W., aged 33, referred by Dr. Wil Mahoney, Nashville, was seen in consultation on February 9, 1940, with a history of severe sciatica on the left side of six weeks' duration. Prior to that, he had had dull aching pain in the lower back for two or three weeks following the lifting of a heavy object. The sciatica radiated down from the hip along the posterior thigh and outer aspect of the left leg into the outer border of the left foot. He had some paresthesia in the same part of the foot.

Examination.—There was marked pain on straight leg raising and left ankle jerk was diminished greatly. Hypesthesia on the outer border of the left foot was present. Lipiodol injection showed defect at the left fifth lumbar interspace.

Operation.—On February 19, 1940, a large protruded nucleus was removed from the fifth lumbar intervertebral space.

Course.—There was complete recovery from nerve root pain. Numbness of the outer left foot disappeared gradually. Note on August 1, 1940, read: "No pain or paresthesia. Straight leg raising painless."

Case 2. C. S., aged 29, was admitted August 22, 1938. Eighteen months before admission he had fallen backward on his right hip. Since that time, he had had increasingly severe pain in the right buttock, posterior thigh and outer aspects of the right leg and foot.

Examination.—There was diminished sensation over the outer right leg and foot and slightly over the posterior thigh and buttock. Right ankle jerk was absent. Pain on sciatic stretching was marked. Lipiodol showed defect at lumbosacral level on the right.

Operation.—Large right lumbosacral herniation of nucleus pulposus was found and removed.

Course.—There has been no pain since operation.

Case 3. Mrs. L. B., aged 44, was admitted July 28, 1938. For six years there had been some aching in the right hip at times. Two years previous to admission, while carrying a heavy weight, she noticed pain down the posterior right thigh. This grew worse, extended into the right outer leg and sole of the foot. Later she noted tingling in this area. Pain was severe and continuous.

Examination.—There was hypesthesia in the painful area and pain on straight leg raising. Roentgen ray showed "arthritis." Lipiodol injected into spinal canal showed defect between fourth and fifth lumbar vertebrae on the right. Cerebrospinal fluid protein was 41 mg. per cent.

Operation.—Large herniated nucleus pulposus was removed.

Course.—There has been no pain since operation.

Case 4. Mrs. S. C., aged 36, was admitted December 14, 1938, with a history of repeated severe attacks of sciatica on the left side in a period of three years. There was no known antecedent injury. The last attack had begun one month previously. The pain extended from the lower back down the posterior left thigh and outer leg into the dorsum of the foot. There was no paresthesia or weakness. Pain was made worse by coughing or sneezing.

Examination.—She had spasm of the lumbar muscles, sciatic pain on bending to the left, severe pain on straight leg raising on the left and questionable slight impairment of sensation on outer left leg and dorsum of the foot. Ankle reflexes were normal.

Roentgenography.—Plain films showed narrowing of fourth lumbar intervertebral space and lipiodol examination showed a filling defect on the left at this level.

Operation.—On December 20, 1938, except for some apparent thickening of the ligamentum flavum, no extradural or intradural abnormality was discovered.

Course.—In the three years since operation, this patient has had not the slightest recurrence of pain. She has worked steadily as a waitress during this time.

Comment.—This case illustrates two points: that myelography may be very misleading and that simple decompression of nerve roots may give relief. It is, of course, possible that this was a case in which the herniation was spontaneously reduced.

Case 5. Mrs. K. E., aged 38, referred by Dr. E. M. Regen, Nashville, was admitted March 29, 1938. Four months previously she had begun to have sharp, severe pain in the left foot, calf, posterior thigh and buttock, which persisted with increasing severity and was worse on sneezing or coughing. It soon involved the same area on the right. There was no weakness, no bowel or bladder difficulty. There was some numbness and tingling on the outer left leg and sole of the foot.

Examination.—The only sensory change was diminished tactile sensation on the outer part of the left foot. The left ankle jerk was absent, the right was sluggish. There was no weakness. Lumbar puncture: xanthochromic fluid with partial block on Queckenstedt. Protein was 1,600 mg. per cent. Roentgen rays were normal.

Operation.—Neurofibroma of the cauda equina was removed.

Course.—There was prompt recovery with no pain or other symptoms since operation.

Case 6. E. H., aged 31, referred by Dr. T. F. Booth, Pulaski, Tennessee, was admitted May 1, 1936, with history of low back ache for five years which changed one month previously to violent, sharp pain radiating into the perineum and down both posterior thighs and calves into the feet. For two and a half years he had noticed gradual loss of strength in the lower extremities. For a month he had had occasional incontinence of both urine and feces.

Examination.—There was marked sensory loss in the entire sacral area and moderate loss in the lumbar area on both sides. Hyperesthesia was present and there was weakness of all muscles of the lower extremities.

Operation.—On May 4, 1936, ependymoma of the filum terminale was removed.

Course.—There was temporary retention of urine. Subsequent recovery was excellent. Note on August 3, 1940, read: "Looks robust and healthy. Walks without limp. Jumps on table like a school boy. Still has diminished sensation on the right sacral area and absent right ankle jerk."

Case 7.—D. B., aged 40, Negro woman, was referred by Dr. H. C. Capps, Waverly, Tennessee. She had begun to have left sciatic pain ten months before admission on July 22, 1940. Pain had been nearly continuous and she had had some paresthesia in the calves of both legs. Pain was worse on coughing, which also produced some involuntary leakage of urine. There was no definite nerve root distribution of pain.

Examination.—She had marked pain on straight leg raising on the left, absent left ankle jerk and hypesthesia of outer aspects of both legs and feet. There was no block of cerebrospinal fluid but its protein content was 63 mg. per cent.

Roentgenography.—There was an area of irregularity in the posterior border of the inferior edge of the fifth lumbar vertebral body. This was indefinite but was thought possibly due to destructive neoplasm.

Operations.—On August 14, 1940, and again on January 20, 1941, exploratory laminectomies were performed without finding any pathologic process. The canal was not impinged upon and no tumor or protruded cartilage could be found.

Course.—She continued to have severe pain which became worse in the right sciatic area than in the left. Finally, on January 14, 1942, she was readmitted after a large pelvic mass had been discovered (she of course, had had many pelvic examinations during the previous two years). At laparotomy, a large myeloma, arising from the fifth lumbar and sacral bodies, was found. Roentgen therapy was administered subsequently.

Comment.—Undoubtedly, the nature of this lesion should have been discovered sooner. The lack of conclusive roentgenographic findings and the presence of definite nerve root pain contributed to the error.

Case 8. A. O., aged 27, was admitted on January 17, 1937. There had been a crushing fracture of the body of the fifth lumbar vertebra one and a half years before. There had been partial paralysis with good recovery of function and later development of severe pain in the back of the right thigh. Spinal fusion gave no relief.

Operation.—Anterolateral chordotomy was done on the left side.

Course.—Relief of pain was complete.

Case 9. Mrs. M. R., aged 58, referred by Dr. Henry Douglass, Nashville, was seen in consultation in the hospital on September 21, 1936. She gave a history of vague pains in her legs for several years. For several months, there had been severe pain in the lower back radiating down the posterior right thigh. There had been difficulty in voiding with large residual for two or three months. She had fallen several times but was not aware of specific weakness.

Examination.—There was saddle hypesthesia ($S_{3, 4, 5}$) including the posterior of the left thigh. There was weakness of all muscles in the right leg, especially in the calf. Right ankle jerk was absent. There was no spinal fluid block. Cerebrospinal fluid protein was 116.6 mg. per cent. Lipiodol blocked at L_1.

Operation.—Cyst of conus medullaris (syringomyelia) was evacuated.

Course.—Pain was relieved at once. Residual urine rapidly returned to zero. Recovery is complete to the present time.

Case 10. Mr. L. A., aged 33, referred by Dr. R. W. Billington, Nashville, and Dr. V. H. Griffin, Clarksville, Tennessee, was admitted May 30, 1938. At the age of 10 he had had "spinal meningitis." At age of 20, he developed a painful callous on the outer side of the right foot and had limped since. Eight years later, the right leg began to be weaker and subsequently smaller than the left. Sensation became poor in the right foot and he began to have continuous aching pain in the right leg and foot.

Examination.—There was lumbar dimple with palpable defect of the fourth and fifth lumbar arches; atrophy of the right calf muscles (6 cm. difference in circumference), and diminished sensation in the outer aspect of the right foot.

Roentgenography.—Complete spina bifida of the fourth and fifth lumbar vertebrae with bony mass between rudimentary arches of these vertebrae was shown on the right. The patient was discharged and returned for operation on July 5, 1938.

Operation.—On July 7, 1938, a large mass of scar tissue and anomalous bone were removed. Dura was bound up in cicatrix. A large intradural fatty mass to which roots of cauda equina were densely adherent was removed by intracapsular method.

Course.—Recovery was rapid. There was relief of pain, considerable gain in strength but persistence of atrophy.

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THE FREE OMENTAL GRAFT

A CLINICAL AND EXPERIMENTAL STUDY

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In selecting for this discussion the subject, "The Free Omental Graft," I do not feel for one moment that I am presenting anything new or original or that I am contributing much to the sum total of human knowledge; but I have the impression, gained from conversations with busy surgeons and the paucity of reports in the literature, that the employment of this useful and always available method in suitable cases is not in universal use but has been, in this day and time, almost relegated to the limbo of forgotten things. It frequently is greatly profitable to review the work of former generations for not infrequently some idea or method long buried in the dusty files of the past may be brought to light and, when coupled with modern knowledge, initiates a new era.

In the last twenty-five years, with an ever increasing number of abdominal operations by an ever increasing number of operators with widely varying degrees of training, skill and surgical acumen, there has resulted an ever increasing number of cases of intestinal obstruction of the adhesive type.

The reaction incident to inflammation of the peritoneum due to bacterial invasion, of course, has played a major role in the production of this condition; but careful surveys lead to the conclusion that traumata other than infection such as rough handling of viscera, too much instrumentation, exposure, drying and errors in operative technic play a not inconsiderable role as causative factors. For instance, in a series of 511 cases of intestinal obstruction studied at the Charity Hospital, New Orleans, over a six year period, Moss and McFetridge[1] found that 26.8 per cent were due to postoperative adhesions. In a similar series of 581 cases at the John Gaston Hospital (the teaching hospital of the University of Tennessee College of Medicine), over a ten year period,[2] 17.2 per cent were found to be due to postoperative adhesions.

Chronic invalids, their efficiency reduced to the vanishing point, subjects of repeated severe abdominal crises, their nervous systems shattered, classified as neurotics, become a distressing care to their families and a *bete noire* to the conscientious, sympathetic physician. So there has been accumulated in these years this group of surgical victims which is in dire need of reconstructive abdominal surgery, a type of surgery which requires the highest type of technical skill based on a profound physiologic knowledge.

Fifteen illustrative cases will be reported briefly. In each of these the free omental graft was used. Some of these cases illustrate the pathology of diseases, some the pathology of the surgeon, others a combination of both factors.

Before going into these details, a brief review of the literature concerning the free omental graft will, I hope, prove of interest.

Nicholas Senn,[3] in 1888, was the first to advocate the use of the free omental graft. Experimentally, he found that the grafts adhered firmly to the surface to which they were applied. They became well vascularized in a short time. He used four dogs in his experiments, observing his results in from thirty six hours to eight days. His results were better with those grafts placed on scarified intestine than with those placed on undamaged intestine.

Bennett,[4] in 1896, covered a perforated peptic ulcer successfully with a free graft.

Sweet, Chaney and Wilson,[5] in 1915, reported that free, as well as attached omental grafts, were efficacious in covering suture lines and remained free from other adhesions.

Freeman,[6] in 1916, in a purely clinical report, recommends, enthusiastically, the use of free grafts to replace lost portions of the peritoneum, to prevent adhesions, to strengthen suture lines and to check hemorrhage from parenchymatous organs.

Peet and Fenton,[7] in 1919, studied omental grafts histologically, determining that in dogs the grafts survived unchanged for at least six months. They found that the thinner the graft used, the better.

Brocq, Ducastaing and Reilly,[8] in 1923, established the fact that free grafts not only were successful but, in addition, the surface endothelium of the transplanted omentum persists.

Bothe,[9] in 1929, in an extensive histologic study found that the surface endothelium of the free graft not only persists but, at the end of two weeks, is continuous with the endothelium of the recipient organ.

H. F. Graham,[10] in 1934, presented a detailed clinical report of twenty cases of free omental grafts collected from the Methodist Hospital records in Brooklyn. The grafts were used in a variety of conditions and locations including the terminal ileum, mesentery, suture lines, abdominal wall defects, leaking ureter, gallbladder fossa,

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pylorus and duodenum. Graham concluded that: (1) free omental grafts will live; (2) they are hemostatic; (3) they aid in preserving peristalsis; (4) they strengthen weak suture lines; (5) they resist infection.

In the technic of free omental grafting, Freeman's[6] recommendations are of practical value: ". . . the pedicle should not be puckered by ligation. The free border of the omentum should be used to avoid large vessels. The graft should be carefully sutured in place with very fine catgut. The transplant must extend beyond the raw surface. Roll or tuck under the free edges of the graft."

REPORT OF CASES

Case 1. D. P., female, aged 56, was operated on May 6, 1936. Previous operation had been cholecystectomy in 1935. Signs and symptoms were "gallbladder colic" as before first operation, icterus index. Gastrointestinal series showed marked duodenal deformity. Thick bands of adhesions bound the duodenum, pyloric end of the stomach and transverse colon to the liver. Sharp dissection was done releasing the stomach, duodenum and transverse colon from the gallbladder fossa and liver. Grafts of 8 by 6 cm., 10 by 8 cm. and 6 by 6 cm. were made to the liver, duodenum and stomach and transverse colon. There has been no recurrence of colic and the gastrointestinal series is normal.

Case 2. S. S., female, aged 28, was operated on August 17, 1937. Previous operation had been appendectomy and right salpingectomy in 1930. Signs and symptoms were colicky pain, nausea and vomiting. The terminal ileum was completely blocked by adhesions due to right chronic pelvic inflammatory disease. Left adnexa were normal. Blunt dissection of adhesions was done and right oophorectomy. Graft of 10 by 6 cm. was made to denuded terminal ileum. Recovery was complete.

Case 3. W. B., female, aged 31, was operated on October 24, 1937. Previous operation had been an appendectomy in 1930. Signs and symptoms were lower abdominal pain, vomiting, dysuria, 15 pounds weight loss in two months, profuse vaginal discharge. There was chronic bilateral tubo-ovarian abscess. Terminal ileum was densely adherent to the right adnexal mass for 10 cm. Bilateral salpingo-oophorectomy was done and coagulation of the cervix. Graft of 12 by 6 cm. was made to the denuded terminal ileum. There has been no recurrence of symptoms.

Case 4. D. D., female, aged 22, was operated on January 1, 1939. Previous operation had been appendectomy of ruptured appendix with acute generalized peritonitis in 1929. Signs and symptoms were vomiting, lower abdominal colicky pain, grade 3 distention for six days and no gas or feces for seventy-two hours. There were thick adhesions throughout the pelvis and right iliac fossa, chronic bilateral tuber-ovarian disease and the ileum was adherent to the right adnexa. Bilateral salpingo-oophorectomy and supravaginal hysterectomy were done. Graft of 16 by 5 cm. was made to left broad ligament and sigmoid and graft of 6 by 6 cm. to the ileum. There have been no gastrointestinal symptoms since discharge.

Case 5. W. H. C., female, aged 40, was operated on January 28, 1940. Previous operation had been bilateral salpingo-oophorectomy in 1926. Signs and symptoms were colicky pain, vomiting, grade 2 distention, no feces for four days, no gas for thirty-six hours previous to admission. Terminal ileum was densely adherent to right broad ligament. Uterus was resuspended; broad ligament was peritonealized easily. Graft of 8 by 6 cm. was made to terminal ileum. Bowel movements have been regular and there has been no recurrence of colic.

Case 6. M. C. W., female, aged 23, was operated on April 24, 1940. She had had no previous operation. Signs and symptoms were alternating constipation and diarrhea, visible peristalsis, large left adnexal mass. There was a large cystic tubo-ovarian mass wedged into the pelvis minor, right chronic salpingitis and marked distention of the colon. The left adnexal mass was excised and right salpingectomy done. Graft of 10 by 6 cm. was made to the denuded posterior leaf, left broad ligament. Recovery was complete with no gastrointestinal symptoms.

Case 7. L. E. T., female, aged 33, was operated on December 27, 1940. There had been no previous operation. Signs and symptoms were tumor in lower abdomen, four months, pain and tenderness in the right lower quadrant for two months previous to admission. There were multiple myomata uteri, chronic bilateral salpingo-oophoritis and the terminal ileum was densely adherent to the right adnexa. Supravaginal hysterectomy and bilateral salpingo-oophorectomy were done. Graft of 8 by 6 cm. was made to denuded terminal ileum. There has been no recurrence of symptoms.

Case 8. J. A. S., female, aged 41, was operated on January 4, 1941. There had been no previous operation. Signs and symptoms were lower abdominal pain, low grade fever of three months duration and profuse vaginal discharge. There was right pyosalpinx, left chronic salpingitis, marked cystic degeneration of both ovaries, densely adherent terminal ileum. Bilateral salpingo-oophorectomy and coagulation of the cervix were done. Graft of 14 by 6 cm. was made to the denuded terminal ileum. There have been no gastrointestinal symptoms.

Case 9. J. G. C., female, aged 34, was operated on January 13, 1941. Previous operation was right salpingo-oophorectomy and appendectomy in 1933. Signs and symptoms were lower abdominal pain and habitual constipation since last operation. There was left chronic pyosalpingo-oophoritis, densely adherent to the uterus, bladder and terminal ileum. Uterus was denuded entirely. Left salpingo-oophorectomy, supravaginal hysterectomy and complete peritonealization of the pelvis were done. Graft of 8 by 6 cm was made to the denuded terminal ileum. Bowel movements have been regular and normal and there has been no recurrence of pain.

Case 10. C. O., female, aged 28, was operated on January 14, 1941. Previous operation had been ruptured appendix in 1921, appendix not removed, and chronic intestinal obstruction and right salpingo-oophorectomy in 1936. Signs and symptoms were acute intestinal obstruction of three days duration. The healed ruptured appendix had the ileum and cecum adherent to it and the uterus, left adnexa and pelvic ileum were one mass of dense adhesions. The uterus was devoid of peritoneum. Appendectomy, supravaginal hysterectomy and left salpingo-oophorectomy were done and the pelvis completely peritonealized. Grafts of 9 by 6 cm. were made to the ileum and cecum; of 10 by 6 cm. to one portion of the pelvic ileum; of 6 by 6 cm. to another part of the pelvic ileum. Bowel movements have been regular and there have been no gastrointestinal symptoms.

Case 11. B. B. W., female, aged 25, was operated on June 8, 1941. There had been no previous operation. She had had two children. Her history, physical and cholecystogram were positive for chronic cholecystitis. Gastrointestinal series showed duodenal ulcer. She had strawberry gallbladder, dense pericholecystic adhesions between the gallbladder and duodenum, no stones in ducts. Cholecystectomy was done and first portion of the duodenum was denuded completely. Graft of 8 by 6 cm. was made to denuded duodenum. There has been complete relief from digestive disturbances. Patient now takes regular diet with no distress.

Case 12. G. B. K., female, aged 26, was operated on August 3, 1940. Previous operation had been cesarean

section in 1939; acute intestinal obstruction in 1940 for adhesions between small intestines and uterine scar. Signs and symptoms were acute intestinal obstruction for twenty-four hours. Uterus was buried by adhesions to the ileum and bladder. Supravaginal hysterectomy and complete pelvic peritonealization were done. Graft of 10 by 6 cm. was made to the denuded terminal ileum. There has been complete relief.

Case 13. M. B. M., male, aged 24, was operated on September 5, 1941. Previous operation had been appendectomy for ruptured appendix in 1939. Signs and symptoms were acute intestinal obstruction for thirty-six hours. Thick bands of adhesions plastered the terminal ileum to the posterior right iliac fossa wall for 10 cm. Ileum also knuckled and kinked onto the cecum. Lysis of adhesions was done by blunt dissection. Graft of 12 by 6 cm. was made to the denuded terminal ileum and of 6 by 6 cm. to the denuded cecum. There has been complete relief.

Case 14. L. H., female, was operated on January 29, 1942. There had been no previous operation. Signs and symptoms were chronic cholecystitis with stones. There was chronic cholecystitis, cholecystoduodenal fistula, adhesions of liver, duodenum, hepatic flexure of colon and gallbladder. Cholecystectomy and closure of the duodenal fistula were done. Graft of 4 by 3 cm. was made to the denuded duodenum after purse-string closure of the fistula. Recovery was complete.

Case 15. W. S. H., female, was operated on November 26, 1941. There had been no previous operation. Signs and symptoms were abdominal mass filling the pelvis and extending three fingers breadth above the pubis and very tender; metrorrhagia for two months, positive Aschheim-Zondek. There was intra-abdominal rupture of an ectopic pregnancy. Mass consisted of blood clot, fetus (about twelve weeks), great omentum and loops of ileum. Graft of 10 by 4 cm. was made to the denuded terminal ileum. There have been no symptoms.

It will be noted that nine of these fifteen reported cases had had previous operations and six had not. The entire group has remained well and free from symptoms to the present time with the consequence that there has been no opportunity to examine the grafts.

Clinical reports are still too meager concerning the ultimate fate of the free omental graft in the human, so it seemed wise to repeat the original experiments of Senn[3] on dogs with the hope that it might shed some light on this subject and teach something in the technic of the application of this method to the human peritoneum. This experimental work was done by my associate, Dr. Morton J. Tendler, in the Laboratory of Experimental Surgery of the University of Tennessee and reported by him at the 1941 congress of the American College of Surgeons.

REPORT OF EXPERIMENT

In five dogs, free grafts of 10 by 3 cm. were detached from the free border of the omentum. These grafts were attached without any injury whatsoever (excepting for the needle punctures) to the entire circumference of the terminal ileum, about 30 cm. from the ileocecal valve. For fixation No. 50 cotton sutures (J. & P. Coats) were used approximately every 2 cm. In order to insure future mesenteric blood supply the grafts were sutured on both sides to the mesenteric borders of the ileum. The edges were carefully tucked under and the sutures clipped very short.

In five other dogs, the surface of the terminal ileum, about 30 cm. from the ileocecal valve, was scarified over an area roughly 8 by 3 cm. Scarification was done with the cutting edge of a dull scalpel. Complete macroscopic denudation was accomplished easily. After rubbing the scarified surface with a dry gauze sponge, the graft was applied as in the first series.

From ninety to a hundred days after the application of the grafts, the dogs were relaparotomized. The results of the experiments upon the unscarified intestine (relaparotomized after three months) follow:

Dog 1. Normal omentum enveloped grafted area throughout its length. Sutures in place glistened through omentum. There were no other adhesions.

Dog 2. Graft enveloped as in dog 1. Part of graft was fused completely with omentum. There were no other adhesions.

Dog 3. Same as dog 2.

Dog 4. Same as dog 2.

Dog 5. Same as dog 1.

In all of the five dogs in which the grafts were laid upon the unharmed ileum, the omentum had completely wrapped itself around the segment operated upon in such a way that it was impossible to tell the graft from the enveloping omentum. The only identifying remains of the grafts were the cotton sutures used in securing the grafts in place. There were no other adhesions to intestines or to the omentum. The area of the omentum from which the free grafts had been excised had smoothed out completely, although the ligatures were still loosely in place in several instances.

The results of the experiments in which free omental grafts were applied to scarified ileum (relaparotomized after three months) follow:

Dog 1. Smooth, glistening patch was outlined only by sutures; very little fat remained and no adhesions.

Dog 2. Patch was smooth and glistening. Extension of mesenteric vessels into the graft was quite prominent. There were no adhesions.

Dog 3. Patch was smooth and glistening. There was very little fat, not more than 10 per cent, remaining. There were no adhesions.

Dog 4. Omentum enveloped the grafted area completely. Omentum had crept up under the dorsal mesenteric side sutures. There were no other adhesions.

Dog 5. Patch was smooth and glistening. Mesenteric vessels extension was prominent. There were no adhesions.

In four of these five dogs in which the grafts had been applied to scarified intestine, the resulting patch could be identified easily by the sutures still in place. The graft in all four dogs mentioned required careful inspection in order to outline it at all from normal ileum, so smooth and glistening was the surface. The only irregularities consisted

of blood vessels which had grown into the grafts from the mesentery and the remaining suture knots. Peristalsis continued normally through the grafts. Fine long white strands could be detected, running veil-like through the length and breadth of the patch. They resembled strands of replacement fibrous connective tissue. Very little of the original fat in any of the grafts remained after three months. The circumference and the diameter of the patched area were no different from the remainder of ileum. There were no evidences of adhesions between omentum and intestinal loops or between intestinal loops.

In the remaining dog in this series, the omentum had crept up under the sutures of the dorsal mesenteric side for about 1 centimeter. The result in this dog looked almost exactly like those in the first series of unscarified intestine. Omentum, the width of the graft approximately, had wrapped itself about the entire segment. There was no interference with peristalsis however. There was no diminution of circumference or diameter of the involved segment. Failure in this case is believed to be due to inadequate suturing of the graft on the dorsal mesenteric side.

A small series of experimental grafts, such as this one, is valuable personally more than it is for publication. It revealed technical errors such as clinical autopsy material might. It showed clearly what happens to the well-placed graft and to the one poorly attached. From evidence gathered after three months it could be deduced, as shown by other investigators, that the ultimate fate of the graft is complete absorption of its fat and that, excepting for its outline by the use of nonabsorbable suture material, it would be difficult to identify.

SUMMARY

1. A clinical and experimental study of the free omental graft, with a brief review of the literature, is presented.

2. Fifteen clinical cases, wherein free omental grafts were employed, are reported in detail.

3. Free omental grafts upon scarified and unscarified intestine, after Senn's[3] experiments, were employed in ten dogs and the results noted.

CONCLUSIONS

1. The free omental graft is a rational and homologous agent, easily available and easily utilized, in those cases of adhesions and adhesive obstruction wherein areas of denudation of peritoneum occur.

2. Fifteen reported cases, in which free omental grafts were employed, have remained clinically well.

3. In dogs, the better graft results when the surface to which it is applied is thoroughly scarified. When normal peritoneal surface (unscarified) is used as a base, the graft does not take but becomes enveloped by the intact omentum. This confirms the findings of Senn.[3]

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MILITARY DEMANDS UPON THE CARDIOVASCULAR SYSTEM

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The great total war in which the world is now engaged calls for the greatest physical stamina and the most rugged cardiovascular systems that have ever been demanded under any other circumstances in the past. Vast numbers of able-bodied supermen will be needed to bring victory. Those who cannot stand the strains to which they are exposed in the armed forces are liabilities rather than assets. The medical corps has no time in this emergency to spend on the rehabilitation or building up of those with subnormal cardiovascular reserve. It behooves physicians, therefore, to be most careful in examinations so as not to pass or send on for costly training men whose nervous systems or cardiovascular systems show evidences of significant weakness. Individuals with evident subnormalities which would make it impossible for them to bear the unusual burdens or bear them only partially, and men who give little or no promise of being able to rise to the occasion whenever it is demanded should not be certified.

The routine examinations must rule out not only individuals with organic vascular disease or heart disease, but one must naturally be certain not to overlook severe cardiac neurotic and neurovascular asthenic individuals. Physical requirement for enlistment in some services such as in the Air Corps must, of course, be most rigid. It may be worth while to discuss these since the need for good pilots is so pressing.

Many different types of problems concerning cardiovascular disturbances must be met by the Medical Corps of the armed forces. Accidental physical damage all too frequently is done the vascular system, as well as other systems, in the training of good troops under the heavy pressure for emergency manpower. The effects of high altitudes and of dive bombing call for consideration and study even in some otherwise athletic individuals. Proximity to explosions of great bombs will cause serious pressure effects, particularly in the lungs, but also in the heart and aorta of soldiers.

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A whole train of ill effects of the trauma of war on the cardiovascular system must be reckoned with. In actual combat along with the excessive strain there will be added wounds from shrapnel and gun shots in the chest, bullets in the heart walls or chambers, in the great vessels and in the larger peripheral arteries. Penetrating wounds through the pericardium will result in damage to the coronary vessels, to the ventricular muscle mass and arteriovenous communications or fistulas may be produced in the great vessels or in the periphery.

THE EXAMINATION

Since hundreds of selectees must be examined by the voluntary draft board physicians each day and usually after the routine work of the day has been completed, the difficulties and pitfalls are multiple. Errors of omission are likely to creep in even in the induction examinations of the medical officers of the armed forces as they too are overwhelmed with the mass of routine work that they must perform.

A good plan is to take a succinct history of each selectee while he is preparing to be examined. Much can be learned by the alert examiner by a few well poised questions. The reaction to questions often reveals much of the physical and nervous makeup of the man under examination. The stoic is to be suspected as well as the anxiety neurotic individual and the malingerer.

An affirmative response to questions concerning infections or other diseases known to injure the heart or great arteries calls for holding the candidate aside for more detailed questioning, study and physical examination. The general run of recruits will pass along in line and the examination of these consists of only a rapid general survey.

Any conspicuous abnormality such as cyanosis, pallor, floridity, flushing, extreme anxiety, staring eyes, tremulousness, throbbing carotids, visible masses in the neck or abnormal pulsations over the chest, even to a displaced apical impulse, warrant detaining of the recruit for more careful examination.

Examinations of candidates by the draft board physicians are of necessity rather superficial. Absolutely minimal local examination should include the rapid scrutiny of the draftee as a whole. After the quick glance at the neck vessels and the chest for the position of the heart's apex beat, there is in order the counting of the heart rate for a full minutes, at the same time noting the rhythm.

Auscultation is carried out over the second right interspace after deep expiration and directly over the apex impulse with the examinee in the left lateral position. During auscultation, the carotid pulse should be palpated simultaneously. One should note changes in the heart sounds and time any murmurs present in any of the various valvular areas. Analysis of abnormal sounds and any murmurs consists in determining location, time in cardiac cycle and direction of propagation.

Blood pressure studies should be routine, even in preliminary draft board examinations. The effect of twenty hops first on one foot and then on the other or of twenty squats on the pulse rate and the blood pressure levels should be noted immediately and during the first two minutes after the exercise test. The heart's size should be estimated roughly by locating the maximum apical impulse with the recruit leaning forward or on his hands and knees.

The position of the apical impulse is the most reliable indicator of the extension of the left border of the heart, consequently the best sign of cardiac size. Careful percussion will determine the presence of abnormal retromanubrial dullness and delineate fairly accurately the borders of cardiac dullness.

The transverse measurements vary according to the patient's habitus. The heart lies transversely due to the relatively high diaphragm in a hypersthenic broad chested individual and hangs down in an asthenic individual with the narrow chest. Thus relation to the nipple or midclavicular line is more reliable than measurements in centimeters. One must be certain that the position of the heart and its apex one way or another may not be the result of abnormal conditions in the chest that may displace the heart to one side or another. Therefore, in those with abnormal positions of the apex impulses or left borders, the back of the chest should be examined for dullness or tympany of fluid, pneumothorax or massive collapse.

RECOGNITION OF THE OBVIOUS CARDIOVASCULAR DEFECTS

It is of primary importance that individuals with any one of the reliable criteria of organic heart disease should be disqualified for active military service. The conspicuous strikingly cyanotic facies, the maladie bleue of morbus caeruleus and clubbed fingers and signs of congenital heart disease make the decision. Likewise, the high malar flush, ruby rouged lips of high grade rheumatic mitral stenosis valvular heart disease or the florid facies of hypertensive arteriolar disease should be recognized promptly. The pink flushed skin of the patient with chronic vascular diabetes mellitus, the stare of the exophthalmic goiter adolescent with hyperthyroidism and the striking pallor or cafe au lait color and clubbed fingers of the young men with subacute bacterial endocarditis all should be noted in recruits and investigated to prove or disprove the presence of disqualifying cardiovascular disease.

The engorgement of the neck veins in the absence of a mediastinal tumor indicates a high venous pressure which generally is due to heart failure. Abnormal pulsations and cardiac mechanism disorders of serious grade, as alternation, auricular or atrial fibrillation or flutter or heart block, conspicuous and persistent gallop rhythm, indicate the presence of serious heart disease.

Diastolic thrills and murmurs indicate the presence usually of chronic cardiac valvular disease

and enlargement of the heart means that the heart muscle has been affected adversely. Chronic sustained hypertension presages arteriolar vascular disease in the heart and other organs; striking generalized arteriosclerosis and certainly aortic root sclerosis as suggested by increased dullness accentuation of liquid aortic second sound and an aortic systolic murmur in the presence of normal blood pressure, Allbutt's signs and anginal attacks, short or prolonged, with or without persistence of pain and evidences of myocardial infarction, complete the groups of reliable criteria of heart disease. Any one of these should lead to disqualification of the candidate.

FUNCTIONAL DISORDERS OF THE HEART

Cardiac neuroses or psychoneurovascular disorders, the so-called neurocirculatory asthenia, or Lewis' effort syndrome or Da Costa's soldier's heart, already have proven to be great sources of trouble in the armies of the present total war as they did in World War I and the war between the States. The soldier's heart is a troublesome and refractory disabling condition and, therefore, severe psychoneurotic, potential vascular asthenic individuals, should be recognized and disqualified at the first draft board examination.

Under the pressure of the emergency demand for intensively trained manpower in mass, the strain will be maximum and the weaklings become serious liabilities rather than assets to the armed forces. Then, too, the distressing environmental factors which have caused or aggravated the breakdown cannot be removed in the service and, furthermore, it is almost impossible to establish the intimate contact between patient and assigned but unchosen medical officer necessary for successful handling. The prolonged period of graduated exercises cannot be carried out and a further impediment to success is that the medical officers' duty is to serve the state first and the patient second.

Every effort should be made to prevent the bogging down of the Army by certifying recruits in whom this symptom complex is certain to be precipitated by the rigors of Army life. Great care should be exercised during the examination to cull out the certain types of individuals that are known to be predisposed to the development of the vascular psychoneuroses.

PSYCHONEUROVASCULAR ASTHENIA—DA COSTA—LEWIS'

Victims of neurocirculatory asthenia, or the so-called effort syndrome of Lewis or Da Costa's soldier's heart, are usually constitutionally inadequate, undersized, undernourished, frail, flat chested, nervous, introspective, sedentary, white collar office workers. These are often physically and mentally subnormal with a basic nervous instability. They usually have suffered from repeated partially disabling upper respiratory infections or general pyogenic or focal lesions and have been suspected of having atypical tuberculosis lesions and have shown definitely low tolerance for physical exertion.

The precipitating factors have been the fear of death, the terror of destruction and a raging demoralizing mental conflict. Wood pointed out recently that the symptoms and signs of neurocirculatory asthenia resemble those of emotion, especially fear, rather than of effort. He felt that the mechanism of the somatic manifestation depends upon central, emotional or fear stimulation, not upon hypersensitivity of the peripheral autonomic system.

The reaction becomes linked to effort, Wood argues, by a variety of devices which include misinterpretation of emotional symptoms, certain vicious circular patterns and the growth of a conviction that the heart is to blame. Upon this is based a fear of sudden dissolution on exertion, conditioning a hysteria. Incapacity tends to be exaggerated consciously or subconsciously to protect the individual from further painful emotional experiences.

In civilians such secondary factors as partial starvation, avitaminosis, overwork, worry, exhaustion, convalescence from severe infectious diseases as tonsillitis or pneumonia or absorption from definite foci of subclinical infection or even the beginning insufficiency of otherwise asymptomatic heart disease may be most significant and induce psychoneuroses. Perplexing private circumstances may arise creating a situation of distress with which the patient is at a loss to cope adequately. Fear, anxiety and worry play, perhaps, greater roles in precipitating neuroses in every day competition than underfeeding or overworking. It is nervous exhaustion rather than physical fatigue that causes the development of the symptoms of Da Costa's syndrome.

The symptoms may be almost indistinguishable from those of organic origin and are quite as disabling and apparently as distressing as those of structural heart disease. The distress of neurocirculatory asthenia may be brought on by the slightest exertion and is accompanied by palpitation, a sense of rapid heart action, breathlessness, weakness and usually also dizziness, faintness and even syncope. At times there may be precordial distress that may be almost typical but it is usually slightly atypical. The patient may become panicky and jittery.

The signs are usually few and nonpathognomonic. Some definite color changes such as blanching, dermographism or acrocyanosis and cold perspiration as well as tachypnea, tachycardia and rapid transient blood pressure fluctuations are usually present. Coarse tremors and general flabby musculature and the low exercise tolerance are characteristic along with the irritable heart and vascular system. The reliable signs of organic heart disease are all absent. Electrocardiographic and roentgenographic studies reveal no abnormalities. The responses to exercise tests, none of which are en-

tirely satisfactory, of course, are exaggerated greatly. The physical findings are not as abnormal as the psychic makeup.

EXERCISE TOLERANCE TESTS

THE SCHNEIDER INDEX

In the air service the tests of circulatory efficiency in the heart rate and blood pressure reaction devised by Major Edward C. Schneider are emphasized and the index is calculated. The tests consist of pulse and blood pressure observations under standard conditions of rest and exercise. The test should not be taken within two hours after a meal or during an intercurrent respiratory infection or after the use of stimulating drugs, all of which definitely would lower the index. After the use of depressant drugs or after an alcoholic debauch the index would be increased abnormally. The smoking of tobacco may affect the index. The patient's habits as to exercise and sleep should be taken into account in interpreting the findings.

The Schneider index is determined as follows:

(1) The patient reclines in bed for five minutes.

(2) The heart rate is counted for twenty seconds. When two consecutive twenty counts are the same this is multiplied by three and recorded.

(3) The systolic pressure is taken by auscultation and recorded. (Take two or three readings to be certain.)

(4) The subject then rises and stands for two minutes to allow the pulse to assume a uniform rate. When two consecutive fifteen second counts are the same, multiply by four and record. This is the normal standing rate.

(5) The systolic pressure is taken as before and recorded.

(6) Timed by a stop watch, the patient steps up on a chair 18½ inches high five times in fifteen seconds. To make this uniform the patient stands with one foot on the chair at the count of one. This foot remains on the chair and is not brought to the floor again until after count five. At each count he brings the other foot on the chair and at the count "down" replaces it on the floor. This should be timed accurately so that at the fifteen second mark on the stop watch both feet are on the floor.

(7) Start counting the pulse immediately at the fifteen second mark on the stop watch and count for fifteen seconds. Multiply by four and record.

(8) Continue to take the pulse in fifteen second counts until the rate has returned to the normal standing rate. Note the number of seconds it takes for this return and record. In computing this return, count from the end of the fifteen seconds of exercise to the beginning of the first normal fifteen second pulse count. If the pulse has not returned to normal at the end of two minutes, record the number of beats above normal and discontinue counting.

(9 and 10) Check up points and enter final rating according to the table. A Schneider index of eight or less calls for careful reconsideration of all cardiovascular findings but should not in itself disqualify a recruit.

Table 1. *Military Cardiovascular Examinations*

Table of Points for Grading Cardiovascular Changes (Schneider Index)

		B. Pulse Rate Increase on Standing				
A. Reclining Pulse Rate	Points	0 to 10 Beats Points	11 to 18 Beats Points	19 to 26 Beats Points	27 to 34 Beats Points	35 to 42 Beats Points
50 to 60	3	3	3	2	1	0
61 to 70	3	3	2	1	0	–1
71 to 80	2	3	2	0	–1	–2
81 to 90	1	2	1	1	–2	–3
91 to 100	0	1	0	2	–3	–3
101 to 110	1	0	–1	–3	–3	–3

		D. Pulse Rate Increase Immediately After Exercise				
C. Standing Pulse Rate	Points	0 to10 Beats Points	11 to 20 Beats Points	21 to 30 Beats Points	31 to 40 Beats Points	41 to 50 Beats Points
60 to 70	3	3	3	2	1	0
71 to 80	3	3	2	1	0	0
81 to 90	2	3	2	1	0	–1
91 to 100	1	2	1	0	–1	–2
101 to 110	1	1	0	–1	–2	–3
111 to 120	0	1	–1	–2	–3	–3
121 to 130	0	0	–2	–3	–3	–3
131 to 140	–1	0	–3	–3	–3	–3

E. Time of Return of Pulse Rate to Standing Rate, After Exercise	Points	F. Systolic Pressure, Standing Compared With Reclining	Points
0 to 30 seconds	3	Rise of 8 mm. or more	3
31 to 60 seconds	2	Rise of 2 to 7 mm.	2
61 to 90 seconds	1	No rise	1
91 to 120 seconds	0	Fall of 2 to 5 mm.	0
After 120 seconds: 2 to 10 beats above normal	–1	Fall of 6 mm. or more	–1
After 120 seconds: 11 to 30 beats above normal	–2		

The Crampton test is another designation for the method of imposing a hydrostatic load on the circulation by change of position from lying down to standing up and noting the effects on the pulse rate and the blood pressure. A fall in the systolic blood pressure and an increase in the pulse rate on assuming the upright position are taken as evidences of weakness in the vascular tone in the splanchnic area and the lower extremities. It thus gives evidence of one factor in circulatory efficiency and an index of fitness for service which imposes great strain.

REMARKS ON SPECIAL FITNESS REQUIREMENTS

Recruits for the cadet flying corps must pass the most rigorous physical fitness tests, for the military pilot must be able to carry on under the most extreme physiologic and psychologic stresses and strains. Athletic prowess is not a guarantee of fitness for such service as athletes are more often fainters than are non-athletes (Mayerson). Relatively few men possess the inherent stamina, ability and skill to become ace aviators. A high grade of circulatory efficiency insured by a rugged cardiovascular system is prerequisite for a successful military aviator in order to maintain adequate tissue respiration so that active neuromuscular co-

ordination persists under the adverse conditions of combat flight.

Sudden changes in speed or direction of movement such as are common in military flying may produce profound physiologic changes. It requires a thoroughly trained cardiovascular system to withstand the terrific impact and extremely high pressures of a power dive. On leveling off from a high dive in flight a tremendous force is exerted by the plane from the seat to the head of the pilot, counteracting which there is the momentum of the aviator's body exerted from his head to the seat. Enough blood may be forced into the lower parts of the body so that there develops cerebral anemia and unconsciousness. These undesirable shifts of blood mass may be minimized by the application of a snugly fitting pneumatic abdominal binder.

Anoxia of higher altitudes produces changes in pulse, blood pressure and the electrocardiographic tracings. R-S-T depression and T wave negativity appear during rapid ascent. A rise in pulse rate and blood pressure is often present at 4,000 feet. But usually real tachycardia appears at from 8,000 to 12,000 feet up to which altitude the blood pressure increases. At 12,000 feet the blood pressure begins to fall off and the pulse pressure increases due to the characteristic drop in the diastolic blood pressure. A Schneider index of less than eight calls for a complete restudy of the cardiovascular system. Fainters, even good athletes, are unfitted unless their vascular reflexes can be conditioned otherwise.

Recruits for the cadet flying corps must pass the most rigorous tests of physical fitness of all systems as well as of the cardiovascular system. Reaction time, visual acuity and good muscle coordination are quite as important. The stresses and strain of military service flying in which there may be exposure to high altitudes and low oxygen tension, sudden changes in speed and direction of motion and the power dive and pulling out of it produce profound physiologic and psychologic changes incident to tremendous shifts in the blood mass. Cerebral anemia and syncope may be the result of the forcing of a critical amount of blood into the lower parts of the body. A force from six to eight times the force of gravity may be exerted. Pneumatic abdominal flying belts prevent much of the shift of blood into the splanchnic venous depots. In spite of this, in extreme instances, the shift to the legs and arms still may be enough to precipitate a momentary blackout.

CARDIOVASCULAR CONDITIONS THAT DISQUALIFY THE RECRUIT FOR ACTIVE SERVICE

The routine rapid study of recruits as outlined will suffice to bring out certain groups that should be considered unfit and immediately disqualified for military services and other groups of questionable fitness. The first group would be those that present any one of the reliable criteria of organic heart disease as outlined previously. Among these one must list individuals with:

(1) Congenital anomaly of the heart.

(2) Active or healed organic rheumatic valvulitis including organic mitral insufficiency or syphilitic aortic disease.

(3) Acute or chronic pericarditis.

(4) Cardiac enlargement, hypertrophy or dilatation of the heart.

(5) Hypertensive arteriolar disease with persistent systolic blood pressures above 140 and diastolic blood pressures above 90, with or without arteriosclerosis or angina pectoris.

(6) Serious cardiac mechanism disorders, particularly the irregular heart action or arrhythmia of auricular or atrial fibrillation or flutter, ventricular paroxysmal tachycardia, heart block or pulsus alternans. A heart rate of more than 100 or less than 50 should put the recruit on the borderline.

(7) Certain peripheral vascular diseases such as Raynaud's local digital syncope, erythromelalgia, acrodynia, Buerger's thromboangiitis obliterans, periarteritis nodosa, arteriosclerosis obliterans, severe varicose veins or thrombophlebitis.

(8) Hyperthyroidism, acute or chronic, chronic Bright's disease or chronic diabetes mellitus.

(9) Any type of aneurysm, central or peripheral, saccular fusiform or arteriovenous.

(10) Conspicuous constitutional inadequacy, physical or psychic. A psychoneurovascular disorder, suggestive of Da Costa's soldier's heart syndrome.

The group of questionable fitness cases calls for a careful review of the whole cardiovascular examination and would include those recruits with the following:

(1) A Schneider index of less than eight.

(2) Slight psychoneuroses, mental or physical, which render them incapable of being made fit for immediate soldiering service.

(3) Those who have been at sedentary occupations and are of poor physique.

(4) Those in whom a severe acute infection other than rheumatic fever or one of its manifestations had apparently precipitated vascular asthenia.

(5) Those with a history of an attack of rheumatic fever or something resembling one of the manifestations of that disease.

Into one of these groups are placed those who, with carefully graduated exercise, require a longer than average period of training to fit them for some types of work. They would be qualified to do such duties as paper work and the less strenuous work of some branches of the service. If recognized at the time of induction into military service and properly handled from the start, many of these of questionable fitness could be trained for service in a safe sedentary job in the Army. Just now, however, the officers cannot give the necessary individual attention to such recruits. It, therefore, probably would prove to be an impediment to progress of the National Defense program to undertake the restoration of these recruits to fitness

in the Army at this time. The fact that these disorders are so commonly precipitated in the young men of higher mental capacity, who have perhaps lived a most sheltered life, make the subject one of great interest to the physician on the Selective Service board.

If rheumatic fever infection has occurred, only half of the affected recruits can be rehabilitated while after other infections, restoration of practically all recruits to service fitness may be accomplished by careful management while carelessness will result often in invalidism.

The psychoneurotic cases constitute the problems with which modern psychiatry is struggling and gaining some success. In a recruit with a psychoneurocardiovascular disorder, after a thorough inquiry and a complete physical examination, the first thing is to convince the disturbed individual that he has absolutely no organic heart or circulatory disease. Graduated exercises and games as developed by Bertnard Smith, M.D. (J. A. M. A., 72:103, January 11, 1919) are helpful, especially with the modern accompaniment of music under the direction of expert physical culture instructors. Occupational therapy is also of great advantage in the refitting and rehabilitation of these recruits.

SUMMARY

The extra demands upon the cardiovascular system incident to military service have been discussed.

The importance of recognizing potential noncombat casualties has been stressed.

A rapid method of study for determining the presence of organic heart disease is outline. The reliable criteria of heart disease are set down.

The clinical characteristics of serious functional disorders of the heart are described in detail.

The symptoms and signs of Da Costa's soldier's heart or Lewis' effort syndrome or neurocirculatory asthenia are emphasized along with a differential diagnosis and the therapy of the condition.

The physical requirements of the air service are mentioned. The Schneider test is outlined. The conditions that absolutely disqualify for active military service are listed and some questionable disqualifying conditions are discussed.

University of Texas Medical School.

NEED FOR MEDICAL AND HEALTH PERSONNEL STRESSED BY JOURNAL

Pointing out that during the period of the war physicians must be willing to dislocate themselves in order to meet civilian war needs exactly as they must be willing to volunteer for service with the Armed Forces as those forces require additional enlistments, *The Journal of the American Medical Association* for August 1 says that "if the medical profession can answer these calls as they should, the problem of postwar adjustment, with the retention of all the factors that make American medicine what it is today, is more likely to be solved suitably."

Under the heading "Current Needs for Medical and Health Personnel," *The Journal* editorial says:

"In an effort to determine just how large a medical personnel may be required in health departments and hospitals, G. St. J. Perrot and Harold F. Dorn of the Division of Public Health Methods, National Institute of Health, sent out a questionnaire to all such institutions. About 80 per cent, or 1,036 of the 1,272 health departments to which questionnaires were sent, reported that they now employ 16,921 technically trained full time paid persons and have existing vacancies for 1,093 persons. Needed to provide services made necessary by wartime activities are an additional 3,908 persons. If the 20 per cent of health departments which did not reply need proportionately as many persons, an estimated total of slightly more than 6,000 employees will be required by health departments. Forty per cent of these are public health nurses and 9 per cent physicians.

"Private and nonfederal governmental hospitals reported that at present nearly 20,000 nonmedical professional and technical persons are needed and that planned expansion will require as many more. Forty-five per cent of these are graduate nurses and 21 per cent student nurses. 'Many hospitals report that the difficulty of obtaining interns, residents and service and maintenance personnel is fully as great as the difficulty of obtaining technically trained persons. This shortage of personnel is partially the result of an increased demand for hospital service arising from the higher income of wage workers and, in certain areas, from a rapid increase in population because of the expansion of war industries. Equally important, however, is the loss of personnel, some of whom have been taken by the Armed Forces or governmental and military agencies needing trained persons, while others have left because higher wages and shorter hours could be obtained from employment in various war industries.'

"The report concludes that 'the needs for personnel shown in the tables will increase as the Armed Forces expand, and as more and more persons are required for the expansion of war industries. With the exception of physicians, dentists and nurses, the Armed Forces are now training an appreciable proportion of their own requirements for technical health personnel. However, men of military age will continue to be taken for military service unless present policies are changed.'

"Probably no other problem of the war is as difficult from the sociologic, economic and other points of view as the problem of personnel. The training of great numbers of persons in excess of peacetime requirements may mean considerable unemployment after the war. Speeded education is likely to be incomplete and likely to result also in the appearance of many unqualified practitioners in all the professional fields when the emergency ends. Nevertheless the needs, as far as concerns the protection of the public health and the provision of medical care for persons in mushroom towns and boom town areas, must be met. The problem is definitely one for the medical and public health professions. The Procurement and Assignment Service for Physicians, Dentists and Veterinarians should be able, with the complete cooperation of the medical profession, to take care of the medical aspects. . . ."

The administration of vitamin K to the mother while she is in labor will prevent the depression of the prothrombin (blood clotting) level of the newborn and should prove effective in lowering the incidence of hemorrhage of the newborn, J. E. Fitzgerald, M.D., and Augusta Webster, M.D., Chicago, declare in the August 1 issue of *The Journal of the American Medical Association*. "It is well known," they say, "that various types of hemorrhage in the newborn account for a considerable percentage of stillbirths and neonatal [at birth] deaths. . . ."

THE JOURNAL

of the

Missouri State Medical Association

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SEPTEMBER, 1942

EDITORIALS

MORTALITY RATES IN 1942

Mortality rates for the policyholders in the Metropolitan Life Insurance Company reached a new low death rate during the period from January to June of this year. With a death rate of 7.7, the rate was definitely below 8 per 1,000 for the first time. Each month of 1942, except March, recorded a new minimum death rate, a continuation of conditions during the latter part of 1941 when, month after month, new low records of mortality were established. The information available for the country at large indicates that the general population also is experiencing excellent health conditions. No figures for 1942 for the total population are available but data from eighty-seven large cities show a death rate of 12.1 per 1,000 for the first twenty-six weeks as compared to 12.3 in 1941.

Among the important diseases, nine show minimum rates. They are scarlet fever, whooping cough, diphtheria, influenza, pneumonia, tuberculosis, typhoid fever, appendicitis and puerperal diseases.

For influenza and pneumonia, the combined rate is down 23 per cent since 1941. The influenza mortality this year is little more than one half that of 1938, the previous low record. The drop in the pneumonia rate continues the downward trend which was inagurated with the widespread use of serum and the sulfa drugs. For the ten years prior to 1938, pneumonia mortality, although fluctuating widely according to the prevalence of influenza, never fell below 79 per 100,000. In 1938, the pneumonia death rate dropped to 66 per 100,000, in 1939 to 60.5, in 1940 to 47.1 and in 1941 to 40.9. That is, the pneumonia mortality has been cut more than 55 per cent in the last four years. In 1942 the rate is 35.6 per 100,000.

The tuberculosis mortality rate during the six month period was 43 per 100,000, or 3.8 per cent less than the previous low rate reported at this time last year. Not since 1926 has there been an increase rather than a decrease from the previous year's rate. In 1926 tuberculosis ranked second among the important causes of death while today it ranks seventh.

Rates for scarlet fever, whooping cough and diphtheria are the lowest on record and the rate for measles is lower than for 1941.

The rate for appendicitis, 5.5 per 100,000, is more than 25 per cent below the 1941 rate and about half of what the rate was in 1936.

The death rate for the puerperal conditions, which has declined steadily for the last fifteen years, reached a new low for the first six months of this year in spite of an increase in the birth rate.

Cerebral hemorrhage, chronic nephritis and chronic heart disease have shown lower rates in 1942 than in 1941 and chronic nephritis shows a new low rate for this time of the year. Diseases of the coronary arteries has had a higher rate than formerly. Cancer and diabetes also registered slightly lower rates in the first six months of this year than in 1941.

Occupational fatalities have increased with the increased industrial activity but the number of motor vehicle accidents has decreased. The June rate for motor vehicle accidents is almost one third less than for June of last year. For the first six months of 1942 the rate is 6.2 per cent below that of 1941. However, the rate for all forms of accidents for the first half of the year exceeds that of the corresponding period of last year by 4.2 per cent.

THE PHYSICIAN AND LEGISLATION

The medical profession is being called upon heavily by the demands of war but it is not released from other responsibilities because of this. It is still responsible for the health of the people and the maintenance of its methods of furnishing this medical care. Realizing this responsibility of the profession and also that the individual physician is the basic factor, the National Physicians Committee for the Extension of Medical Service has sent to physicians an outline of the national problems of the profession with suggestions on the aid individual physicians can give and a questionnaire for the physician willing to participate to fill out.

Because of the importance of the individual physician in legislative matters which pertain to the health of the public, whether of national or state scope, a portion of the letter and material sent to physicians by the National Physicians Committee is reprinted.

A portion of the letter reads: "We are at war. We are fully aware of the fact that war and war responsibilities occupy your time and attention. However, and notwithstanding, there has been no adjournment of political activity. Nearly 1,000 congressional candidates are seeking election and, on November 3, 1942, 435 will be elected to the House of Representatives. In the meantime, unless it moves swiftly and decisively, medicine may sacrifice its birthright—by default.

"It is now understood that 'new Federal legislation will be essential if medicine is to maintain a national organizational structure, a measure of independence and autonomy.' The gigantic task of securing preelection interviews with the approximately 1,000 candidates seeking election in November has been undertaken.

"You can aid materially. The profession really needs your cooperation. Please read carefully the explanation on the inside pages. If you will aid, sign and return to us the questionnaire—today if at all possible. We will immediately provide you with printed forms and full instructions on how to proceed. We hopefully will be awaiting a reply from you."

The explanation reads: "In April 1941, in the Federal District Court of Washington, D.C., medical groups were found guilty of 'criminal conspiracy to restrain trade.' On June 16, 1942, this criminal conviction was sustained by a decision of the United States Court of Appeals for the District of Columbia.

"Attorneys for the medical groups have petitioned for a hearing before the United States Supreme Court. The Supreme Court may grant a hearing. If a hearing is denied the verdicts of the Federal District Court and the Court of Appeals will be final.

"One meaning of the verdicts of the Court is that 'the practice of medicine is trade and commerce, and that criminal restraints are in operation.' It can be assumed that appropriate action, possibly by injunction, will be taken to remove the 'criminal restraints.' These might include:

"a. The exclusive right of physicians to 'practice medicine.' Presumably, a layman or a lay organization should have the legal right to provide medical service.

"b. The right of physicians to determine educational and ethical standards that shall qualify individuals for the rendering of medical service.

"c. The right of physicians to control or influence the qualifications of physicians on hospital staffs or the qualifications of physicians to be granted courtesy privileges in hospitals.

"d. The right of physicians to control or importantly influence conditions in hospitals under which intern training is provided.

"The nullification of these rights would destroy medical practice as it has been known in the United States. Standards and safeguards which have operated would be removed; every medical society would be paralyzed; the status of the profession would be sacrificed and every practicing physician would face the competition of every fakir and charlatan who decided to 'hang up a shingle.'

"However, in the decision of the Court of Appeals, read by Judge Miller, Associate Justice, is found:

"First, the key to fundamental error. It reads, in part, as follows:

" 'However, our task is not to legislate or declare policy in such matters but, rather, to interpret and apply standards and policies which have been declared by the legislature. That Congress did use the common law test there is no doubt. That Congress was not otherwise advised was perhaps because of the failure of the professional groups to insist upon the distinction and to secure its legislative recognition.'

"Second, the key to the only possible remedy. The decision of the Court of Appeals further reads:

" 'When they go so far as to impose unreasonable restraints, they become subject to the prohibition of the Sherman Act. This then represents a limit to professional group activities. If it is desired to extend them beyond this point, legislation is required for that purpose. It may be desirable that this professional group shall be given such enlarged powers, but if so it will be necessary for the legislature to speak upon the subject rather than for the courts to recognize a privilege based upon preemption or usurpation.'

"Of the utmost importance is this fact—the final verdicts of the Courts will not apply not only to physicians but equally to lawyers, dentists, engineers, architects, all professional groups.

"On this basis the one possibility—the only one—of physicians maintaining their professional status; the safeguards which have so effectively served the public interest; the independence of the profession; is through new Federal legislation.

"THE ONE AND ONLY REMEDY

"New Federal legislation is essential to the preservation of the medical profession and for safeguarding the public against uncontrolled quackery. Such legislation can be enacted only by the Congress—through Congressmen.

"Today, in every congressional district, in every state, candidates are seeking nominations in primaries or are campaigning for the election on November 3.

"The time—the effective time—to secure the cooperation of Congressmen is when they are seeking votes—before the election.

"It is of the most vital importance to every doctor in your district—to you—to qualify the congressional candidates—all candidates—Democrat, Republican, Independent, on two issues:

"a. The status and rights of the profession.

"b. Compulsory hospitalization, sickness or health insurance.

"This in no sense should be considered as 'political activity.' Candidates of all parties should be interviewed. It is the effective method of implementing the implied recommendation of the Judges of the Court of Appeals.

"Here is the all-important question: If we will provide you with printed forms; information, explicit instructions; and the names of other physicians in your congressional district who will cooperate with you—will you serve as one of a committee to interview candidates for Congress in your district?

"This is urgent—of the most vital importance. If

you will aid five thousand other doctors in 435 districts—please—today, fill in the information on the enclosed yellow questionnaire; sign it and return immediately in the self-addressed envelope. No stamp is needed."

NEWS NOTES

Dr. Herbert L. Mantz, Kansas City, was elected a governor of the American College of Chest Physicians at a meeting of the college in Atlantic City, June 6 to 8.

Dr. Paul Murphy, Koch, was elected president of the Missouri Chapter of the American College of Chest Physicians at a meeting in Kansas City, April 27. Dr. Sam Snider, Kansas City, was elected vice president, and Dr. J. A. Stocker, Mount Vernon, was elected secretary-treasurer.

Missouri physicians who will appear on the program of the Mississippi Valley Medical Society meeting at Quincy, Illinois, September 30 and October 1 and 2, are Drs. A. Graham Asher, W. Merrit Ketcham, Carl B. Schutz, Kansas City; H. McClure Young, Columbia; H. L. Kerr, Crane. Dr. Dan G. Stine, Columbia, is president of the society.

DEATHS

Dolan, Aloysius Nicholas J., M.D., Excelsior Springs, graduate of Northwestern University Medical School, Chicago, 1898; medical officer of the United States Veterans Administration Facility; Fellow of the American Medical Association; aged 71; died April 5.

Miles, Bruce E., M.D., St. Joseph, graduate of Ensworth Medical College, St. Joseph, 1902; honor member of the Buchanan County Medical Society; aged 66; died April 21.

Chandler, John J., M.D., Lutesville, graduate of the St. Louis College of Physicians and Surgeons, 1892; member of the Cape Girardeau County Medical Society; Fellow of the American Medical Association; aged 78; died May 5.

Evans, John Lane, M.D., Brookfield, graduate of the University of Pennsylvania School of Medicine, 1920; member of the Linn County Medical Society; Fellow of the American Medical Association; aged 46; died June 24.

MISCELLANY

REHABILITATION OF REJECTEES

Approximately two thirds of registrants under Selective Service who are rejected because of physical disabilities can be made available according to an analysis of the results of physical examinations in Tennessee under Selective Service from February 15, 1941, to January 1, 1942. In an article* in the August 1 issue of *The Journal of the American Medical Association* it is stated that "in considering possible manpower for military service, after correction and treatment possibly around two thirds of the registrants in Tennessee may be made available. Their findings are based on the results of examination on 47,880 registrants.

"Slightly over one half (52.6 per cent) of these registrants were considered qualified for general military service," the investigators point out. "Of the 22,696 registrants not qualified for general military service, 20,497 were rejected by local boards and 2,199 by induction stations.

"Among the 43,034 registrants on whom serologic tests were made, 8.3 per cent were found to have syphilis, with the percentage of colored men (26.3 per cent) nearly ten times that of white men (2.7 per cent). The second most common among these diseases and conditions was musculoskeletal defects, causing 7.4 per cent of these men to be classed I-B or IV-F. Other very prevalent defects were teeth defects, diseases of the eyes and diseases of the cardiovascular system.

"The registrants with diseases or conditions causing them to be classed I-B (qualified for limited military service) have been considered as men who might be suitable for service after correction. . . .

"Of the 11,869 registrants classed I-B (qualified for limited military service), 9,443 (79.6 per cent) were found to have only one defect causing classification I-B, 2,122 (17.9 per cent) two defects causing classification I-B and 304 (2.6 per cent) three or more defects causing classification I-B.

"In all, 7,543 (63.6 per cent) of the 11,869 registrants classed I-B may have remediable defects and through correction and treatment may be prepared for general military duty.

"The nature of the 8,712 remediable defects of these 7,543 registrants was determined. Primary, secondary or latent syphilis was the most common, with 2,752 (31.6 per cent) of these defects in this group. Defective and deficient teeth were the defects for 1,796 registrants, hernia for 1,293 and gonorrhea for 921.

"In addition to the 25,184 registrants classed I-A (available for general military service), 7,543 registrants who were qualified for limited military service may have remediable defects. Thus in considering possible manpower for military service through correction and treatment, approximately two thirds of the registrants in Tennessee may be made available for service."

In conclusion they say that "in view of the need for manpower for military duty the group of registrants rejected from general military service who have defects which are considered remediable represents a large force which can be restored for service for the country. This group of men with remediable defects represents American citizens on whom rests no less responsibility for military service than on their fellow citizens found to be physically acceptable. Facilities are now being made available under the plan adopted by Selective Service for rehabilitating men with remediable defects in order that they may take their proper place during this national emergency and also that these men may be made physically stronger for life as healthy citizens."

*Fenn, Joe W.; Shull, Harrison J.; Williams, W. C., and Puffer, Ruth R.: Selective Service Registrants in Tennessee Qualified for Limited Military Service, J. A. M. A. **119**:1115 (Aug. 1) 1942.

CONSERVATION OF HOSPITAL AND SURGICAL SUPPLIES URGED

Economy of hospital and surgical supplies was urged in a statement recently issued jointly by the Committee on Drugs and Medical Supplies and the Subcommittee on Hospital and Surgical Supplies of the Division of Medical Sciences of the National Research Council. The statement follows:

"The medical profession and hospitals of the country must practice the most severe economy possible in the use of supplies containing materials essential to the conduct of the war. Rubber, metals, fixed equipment,

chemicals and drugs must be conserved to the utmost to make the supply last for the duration of the war. Rubber gloves, when torn, should be patched; rubber drainage material should be resterilized and used again. Adhesive plaster contains rubber. Two pieces should not be used when one will suffice. Better yet, none at all should be used if a cotton bandage will be an adequate substitute. Unnecessarily large dressings should be avoided. Catgut must be conserved. Alcohol and other chemicals should be used as sparingly as possible.

"It is expected that hospital supplies will be available in sufficient amount to meet the needs of civilian patients, but only if those needs are reduced to a minimum. Enormous quantities must be supplied to the military hospitals and to our allies, despite the fact that the materials from which most of the articles are made are in demand for other purposes. Waste, however slight, must be scrupulously avoided.

"This program has the endorsement of the Health Supplies Branch of the War Production Board.

"Committee on Drugs and Medical Supplies
W. W. Palmer, Chairman; Perrin H. Long, Vice Chairman; Morris Fishbein, Evarts A. Graham (ex officio), Ernest E. Irons, E. F. Kelly, George W. Merck, O. H. Perry Pepper (ex officio), John G. Searle.

"Subcommittee on Hospital and Surgical Supplies
Evarts A. Graham, Chairman; C. W. Munger, Mont R. Reid, Edward J. Sovatkin, G. W. Wallerich."

Commenting on the conservation of important materials used in medical practice, *The Journal of the American Medical Association* says:

"Eventually a shortage may occur, because the supply of basic materials is beginning to be restricted. Obviously the supply of all materials depending on steel, aluminum, nickel, rubber, alcohol, glycerin, quinine, zinc or other similarly important elements is likely to be restricted, because these are the materials that find such specific purposes in the production of the instruments of warfare. There are innumerable ways in which the staffs of hospitals and physicians in their offices may conserve such materials—most important, however, being the avoidance of wastage. Far too often doctors and nures are careless in their use of adhesive tape, withdrawing from spools more material than is actually going to be needed. Alcohol may be wasted by pouring away used materials that can be easily reclaimed. Rubber gloves with the proper attention will outlast by double the time of their usual life. The American Hospital Association and the staffs of various institutions should aid in this campaign in every way possible. Posters may be prepared by such organizations and by manufacturers of such products which, distributed and posted throughout the hospital, will serve as a constant reminder to the users of the necessity for careful conservation."

WAR AGAINST TONSILLECTOMY IN MONTHS WHEN INFANTILE PARALYSIS IS PREVALENT

A study of the case of five apparently healthy children in a family at Akron, Ohio, who, after their tonsils had been removed, developed infantile paralysis involving the muscles of breathing, with three of them dying, "emphasizes the dangers of tonsillectomy during the months in which poliomyelitis is prevalent even though cases of the disease have not been recognized in the community," four investigators warn in *The Journal of the American Medical Association* for August 22. The study was made by Thomas Francis, Jr., M.D., Ann Arbor, Mich.; Carl E. Krill, M.D., Akron; John A. Toomey, M.D., Cleveland, and Walter N. Mack, M.S., Ann Arbor.

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.

Camden County Medical Society, December 10, 1941.

Benton County Medical Society, December 12, 1941.

Ste. Genevieve County Medical Society, December 19, 1941.

Pulaski County Medical Society, December 22, 1941.

Moniteau County Medical Society, December 23, 1941.

Miller County Medical Society, December 26, 1941.

Chariton County Medical Society, December 29, 1941.

Montgomery County Medical Society, January 20, 1942.

Holt County Medical Society, January 26, 1942.

Dallas-Hickory-Polk County Medical Society, January 28, 1942.

Butler County Medical Society, February 21, 1942.

Scott County Medical Society, February 21, 1942.

Cass County Medical Society, March 5, 1942.

Lincoln County Medical Society, March 5, 1942.

Johnson County Medical Society, March 13, 1942.

Macon County Medical Society, March 24, 1942.

Webster County Medical Society, March 28, 1942.

Morgan County Medical Society, April 1, 1942.

Franklin County Medical Society, April 13, 1942.

Barry County Medical Society, April 18, 1942.

DeKalb County Medical Society, May 1, 1942.

Christian County Medical Society, June 4, 1942.

Dent County Medical Society, July 14, 1942.

BOOK REVIEWS

ELECTROCARDIOGRAPHY. Including an Atlas of Electrocardiograms. By Louis N. Katz, A.B., M.D., Director of Cardiovascular Research, Michael Reese Hospital, Chicago, Illinois; Assistant Professor of Physiology, University of Chicago, Chicago, Illinois. Illustrated with 402 engravings, including 806 electrocardiograms. Philadelphia: Lea & Febiger. 1941. Price $10.00.

One of the more recent texts to be released on electrocardiography is this unusual treatise. This book is divided into three sections. Each is complete in the utmost, and each section may be read without having read the other parts. In this way, one may read only one section and have a complete and comprehensive idea of those subjects discussed therein.

In the first part one may find the principles of electrocardiography. This includes a discussion on the fundamental principles of the various types of recording machines, the heart as a source of electrical energy, special anatomy and the physiologic principles of the heart and their relationship to the electrocardiogram. Finally, and probably most important, is the meaning of the electrocardiogram in clinical practice.

The second section includes the normal waves with all of their variations and the normal grams in various individuals. One may find here that all important subject of coronary disease, which is dealt with in considerable detail and rightly so for its importance is unparalleled. One may find numerous grams showing the various types of occlusions with the various residual findings. In addition, the author also has some remarks to add. The alterations seen in the electrocardiogram as effected by drugs, deficiency diseases, endocrine and dysfunctions and the findings as seen in the gram in all types of chronic diseases are also found here.

The last section interprets the various types of arrhythmias as they are encountered in clinical practice and as they appear in the grams. The underlying physiologic principles in the production of the arrhythmias are mentioned in some detail. The theories of ectopic pacemakers, the reentry and the parasystole theory are all discussed. There is also some comment on the treatment. One finds not only the simple arrhythmias but also some very complex ones. The last chapter deals with heart blocks.

In reading this book one does not become completely lost in the heart physiology and the interpretations of the grams. There are over 800 illustrations with each gram carrying a complete interpretation of the findings in the gram, and why it is interpreted as such. The most outstanding feature in this book to this reviewer is the classification which is a masterpiece in itself. The only drawback is the manner in which the grams are labeled for in many instances one has trouble in following the interpretation. In many cases the interpretations are found on the reverse page or the opposite side.

This is not a reference book although it is over 500 pages long. It contains an adequate bibliography at the end of each chapter and one may go farther into the separate problems if he so desires. A. E. U.

THE MASK OF SANITY. An Attempt to Reinterpret the So-Called Psychopathic Personality. By Hervey Cleckley, B.S., B.A. (Oxon.), M.D., Professor of Neuropsychiatry, University of Georgia School of Medicine, Augusta, Georgia. St. Louis: The C. V. Mosby Company. 1941. Price $3.00

The physician who has not examined this book may judge from its title that it is some sort of popular treatise on psychiatry. The book is really a serious attempt by the author to describe and explain the enigmatic personality of those individuals commonly called "psychopathic personalities." About half of the 294 pages of the book are devoted to a description of typical cases or cases of better adjusted individuals with some psychopathic personality traits. This would be helpful to the reader who may not be as familiar with such personalities as the psychiatrist. The author reviews current textbook and psychiatric opinion concerning the "psychopath" and presents his own interpretation. The well-known poor prognosis is emphasized and the author prefers to consider the condition a psychosis. He recommends institutions for study and care of such individuals. He does not offer a solution from the viewpoint of criminal law.

The book is indexed. It will be of interest to both the legal and medical profession. A. T. S.

ROENTGEN TREATMENT OF INFECTIONS. By James F. Kelly, M.D., F.A.C.R., Professor and Director of the Department of Radiology, Creighton University School of Medicine, etc., With the Collaboration of D. Arnold Dowell, M.D., Assistant Professor of Radiology, Creighton University School of Medicine, etc. 304 South Dearborn Street, Chicago: The Year Book Publishers, Inc. 1942. Price $6.00.

This is a timely publication. Radiologists have been convinced for a long time of the efficaciousness of roentgen therapy in many types of infections and now at last this evidence has been collected in a single volume.

Practically every field in which radiation therapy has been advocated is discussed and the evidence presented. In certain fields the evidence is most convincing; in others one must draw his own conclusion. The data have been convincingly arranged; it is most complete, consisting of clinical history, temperature charts, leukocyte counts and roentgenograms wherever they were found beneficial in presentation of the case. Fully 439 cases have been analyzed carefully.

The section on gas bacillus infections is especially well covered. Doctors Kelly and Dowell, long advocates of roentgen ray treatment in this field of infection, have presented this subject in a thorough manner, discussing in successive chapters the criteria for diagnosis of gas bacillus infection, mortality rates, gas bacillus infection complicating trauma, diabetes and arteriosclerosis and effects of various sites of involvement.

Various methods of treatment are evaluated such as surgical drainage and amputation, administration of serum and application of roentgen ray therapy. Various combinations of these agencies are also presented. This section is replete with case histories thoroughly worked up and well presented. One is impressed with the efficaciousness of this method in septic wounds from human bites also.

The use of radiation therapy in peritoneal infections is presented also but the case for prophylactic roentgen ray treatment to guard against postoperative infection does not seem convincing.

The widespread usefulness of the method should extend the scope of interest not only to radiologists but also to surgeons, gynecologists, neurologists, otolaryngologists and those practicing other branches of medical specialties.

The authors are to be congratulated on their accomplishment. L. R. S.

SURGICAL PRACTICE OF THE LAHEY CLINIC, Boston, Massachusetts. 376 Illustrations. Philadelphia and London: W. B. Saunders Company. 1941. Price $10.00.

Seldom is a technical treatise so gratefully received as is this one. It is written in a somewhat unusual style. The various systems are covered by various members of the clinic staff. It is easily read and the details are easily followed.

The dangers as well as the indications for the given procedures are given. The reasons for the adoption of a particular method are usually set forth. When this writing is based upon the immense experience and demonstrated abilities of the authors, it cannot but carry conviction.

The volume contains nearly 900 pages and is freely illustrated by drawings, graphs and diagrams.

This work will be of great value not only to the occasional operator who may use it freely but also to the regular surgeon when confronted by a special problem. H. A. H.

A Manual for Diabetic Patients. By W. D. Sansum, M.D., Chief of the Staff of the Sansum Clinic and Director of Metabolic Research of the Santa Barbara Cottage Hospital; Alfred E. Koehler, Ph.D., M.D., Member of the staff of the Sansum Clinic and Member of the Metabolic Research Staff of the Santa Barbara Cottage Hospital, and Ruth Bowden, B.S., Dietitian of the Sansum Clinic, Santa Barbara, California. New York: The Macmillan Company. 1939. Price $3.25.

This is a good manual for those patients who have had the foundation of a lecture course in diabetes. It is also practical for medical students and practitioners. It is, however, too technical for uninformed or slightly informed patients.

There are many fine features in this book such as the pictures illustrating the use of the insulin syringe. The chapter on acid base balance is simply yet thoroughly done. Its table of distinctions between severe insulin reaction and diabetic coma is good. The recipes and substitutions in the diet are valuable features of the book. P. M. N.

Health Resorts of the USSR. A Symposium of Articles Compiled From Data of the Central Institute of Balneology in Moscow. Editor, Dr. I. A. Pertsov. The U.S.S.R. Society of Cultural Relations With Foreign Countries (V. O. K. S.).

While I did not visit all the health resorts in the U.S.S.R. in 1931, the author presents a picture of Russia's health program as I saw it at that time. The fact that these health centers are state owned eliminates the making of false claims through boosting of private interests. E. A. B.

Arthritis and Allied Conditions. By Bernard I. Comroe, A.B., M.D., F.A.C.P., Instructor in Medicine, University of Pennsylvania; Ward Physician, Hospital of the University of Pennsylvania. Illustrated with 200 engravings. Philadelphia: Lea & Febiger. 1940. Price $8.50.

This book of 750 pages, published in 1940, was written when the author was 36 years of age. Probably because of his youth and inexperience, or innate modesty, he gives little of his own ideas or personal experiences. No case histories are given.

He states that the cause of chronic arthritis is unknown and attempts to minimize the importance of focal infection yet, in giving the various theories of the etiology, mentions infections first.

He apparently feels that the significance of foci should not be judged by the internist but should be left to the various specialists. For instance, he says that the relation of an infected tooth to disease of the joints should be left to a dentist who should know more about teeth than a medical man. He advocates the removal of chronic infections in the teeth, tonsils or elsewhere, not because such infections may be related etiologically to arthritis but because such infection may have a deleterious effect on the patient's general health. But the medical man should not attempt to decide this.

In the chapter on treatment, neither the general practitioner nor the specialist will find many helpful suggestions in the management of his crippled arthritic patients who are suffering from pain. For the relief of pain, in addition to prolonged bed rest (most patients with advanced arthritis cannot get up), aspirin and phenacetin are given and if these remedies do not control pain the author advises the administration of dilaudid, grain 1/20 to 1/10, given three or four times a day for ten days or two weeks. Since dilaudid is the strongest opium derivative, it should be effective.

Fifteen pages are devoted to gold therapy. Articles by the advocates of the use of this drug as well as by the critics are discussed rather exhaustively with the former slightly exceeding the latter.

Various orthopedic procedures are considered in detail. They are considered much more in detail than the treatment of arthritis in the preorthopedic state. The chapter on flat feet is very good. P. T. B.

Synopsis of Materia Medica, Toxicology and Pharmacology for Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B., Medical Department, The Upjohn Co., Kalamazoo, Michigan. Formerly Assistant Professor of Pharmacology in the School of Medicine, University of Arkansas, Little Rock. Second edition. With forty-five illustrations, including four in color. St. Louis: The C. V. Mosby Company. 1942. Price $5.75.

This pocket-sized manual of pharmacology is an excellent example of authorship and editorship. It lies in scope between the small, brief epitome and the large cumbersome encyclopedic pharmacologic volume. It has all the information essential to the practicing physician as well as to the student without the redundancy of the detailed experimental work usually quoted in the larger type volume.

The book is arranged in compact convenient chapters, according to the systems upon which drugs act, i.e., drugs applied to the skin, wounds and mucous membranes, drugs acting upon the central nervous system. There are also very good and concise chapters on the subjects of basic principles, material medica, prescription writing, toxicology and classification of drugs. The biologicals, including vitamins, serums and hormones as well as the sulfonamides, are dealt with adequately.

The individual drugs are discussed under headings of description, pharmacologic action, toxicology, therapeutic uses and lists of preparations, each heading in bold type and easy to locate.

The handy size, sturdy construction and ease of refence without redundancy make it a valuable book for the library of any physician. H.P.

Surgery of the Ambulatory Patient. By L. Kraeer Ferguson, A.B., M.D., F.A.C.S., Lieut. Commander, Medical Corps, United States Naval Reserve, etc. With a Section on Fractures by Louis Kaplan, A.B., M.D., F.A.C.S., Associate in Surgery, University of Pennsylvania. 645 Illustrations. Philadelphia: J. B. Lippincott Company. 1942.

Dr. Ferguson is to be congratulated for producing such a fine book on a subject that is of interest to practically all general practitioners. I was impressed with the thoroughness with which each subject was considered. Minor details as well as major problems receive equal attention. This book should be especially valuable to young doctors starting in practice after completing their internship for often young physicians are inclined to send many patients to the hospital who could be satisfactorily attended at the office. The many formulas, cuts and details, with description of every subject pertaining to the treatment of ambulatory patients make the book indispensable to all physicians and surgeons. C. E. S.

ELECTROTHERAPY AND LIGHT THERAPY. With the Essentials of Hydrotherapy and Mechanotherapy. By Richard Kovács, M.D., Professor of Physical Therapy, New York Polyclinic Medical School and Hospital, etc. Fourth edition, thoroughly revised. Illustrated with 314 engravings and color plate. Philadelphia: Lea & Febiger. 1942. Price $8.00.

It is an accurate reflection of the extensive and almost universal interest and absorption in physiotherapy by the entire medical profession that this authoritative treatise enters into its fourth edition within a span of less than ten years. Professor Kovács' direct and lucid diction, his insistence upon concentration on demonstrable and practicable methods and facts, to the exclusion of confusing, although interesting, digressions into the vast realms of theoretic considerations which envelop his specialty, have succeeded again in making his textbook both readable and profitable to the reader.

This book succeeds neatly in fulfilling two ends which are by no means easily reconcilable: there is enough material in any given clinical section to justify a specialist to consult this work for aid and reference and yet enough broad scope and practical point of view have been retained to make the book invaluable, if not indispensable, to the general practitioner who keeps abreast of modern methods in his practice.

There has been considerable regrouping of the subject matter in this edition, mostly in the direction of condensation of previous material by combining two or more related topics into a single section. While this has no doubt saved some repetitions, nonetheless, there are a few places where one feels the subject matter has been too much condensed by this device.

A new section on Hydrotherapy, Massage and Exercise is incorporated into this edition. The latter two topics are nicely treated but the chapter on hydrotherapy seems somewhat inadequate. Especially, the outstanding importance of underwater exercise in modern post-poliomyelitis treatment is not given its just due by its rather cursory mention in this chapter.

Particular mention should be made of Dr. Kovács' authoritative handling of the whole subject of diagnostic and therapeutic effects of electrical stimulation throughout the entire book. In several places in the book he suggests useful applications of this modality which ordinarily are not thought of by the average therapist.

In paring down his section on Electrophysics, the author has swung to the side of oversimplification, or rather, perhaps, overcondensation. While this book cannot offer a complete course in electrical physics, nonetheless, one wishes the author had cleaved less closely to bare essential physical facts. The descriptions and explanations of structure of essential components of electro-apparatus are so brief that the student cannot often grasp the principles involved. M. P.

MEDICAL APPLICATIONS OF THE SHORT WAVE CURRENT. By William Bierman, M.D., Attending Physical Therapist, Mount Sinai Hospital, New York City, etc. With a Chapter on Physical and Technical Aspects by Myron M. Schwarzschild, M.A., Physicist, Beth Israel Hospital, New York City, etc. Second edition. A William Wood Book. Baltimore: The Williams & Wilkins Company. 1942. Price $5.00.

This book is divided into two parts: "I, Fundamental Considerations," and "II, Clinical Considerations."

In part I the author discusses physics of the short wave current giving information on (1) selection of equipment, something every man who is not familiar with this modality of therapy wishes to know; (2) the application of electric currents, dosage, distribution and power output; (3) determination of temperature produced by currents in the living human being; (4) the physiologic response of local heat (produced by short wave) of blood, blood vessels, lymphatic system, nervous system, cells and tumors, and (5) effect on bacteria, infections and inflammations and on chemical substances. The last section in part I considers the injurious effect of short wave current. Opinions of electrotherapeutists in Europe and America are quoted, giving pros and cons on each subject.

In part II a chapter is devoted to technic and another chapter is devoted to fever therapy. Under the chapter on technic the author gives such specific details that it seems almost anyone could make use of short wave equipment therapeutically. In describing fever therapy the author again goes into detailed description of technic, modalities used, physiologic action, indications for using and contraindications.

In his introduction to "Clinical Application," the author says:

"We have taken the definite position that the physiologic and therapeutic changes produced by this current appear to be best explained by its ability to develop heat. To this effect—and to this effect alone—with the subsequent changes produced by it, we attribute the reactions which follow the utilization of this energy as a therapeutic agent.

"The fact that we possess so potent an agency as the short wave current does not mean that we should discard other methods of thermal application. The different modes of action of these other procedures may indicate their use for certain conditions. In general, we may say that conductive heating measures, such as the hot water bag, the electric pad, the hot compress and long wave infra-red radiation, heat essentially the superficial layers of the skin. Luminous radiations (including the near infra-red) penetrate through the skin and, to a lesser extent, cause an elevation of the temperature of the tissues lying a short distance beneath it. Diathermy heats the structures lying deeply but, in general, not as uniformly as the short wave current. Ideally, for the most efficient treatment of conditions where the application of heat is indicated, the practitioner should possess all of these modalities.

"The consensus of opinion is that the short wave current produces more uniform heating to a greater depth; is more conveniently applied and with less danger of producing burns."

Under "Clinical Application" the author has outlined the contents of this book so meticulously that each general practitioner or specialist can easily and quickly find reference to pages that will give him information desired. In this part, too, he is not self-opinionated but gives the reader the advantage of opinions of scores of men both at home and abroad. The book is well written, shows that the author has worked arduously by presenting opinions of many others and it is an unprejudiced presentation of the subject. One can learn much from studying the illustrations alone. To anyone wishing to learn of short wave therapy this volume is recommended. J. L. M.

PERSONALITY AND MENTAL ILLNESS. An Essay in Psychiatric Diagnosis. By John Bowlby, M.D., Psychiatrist, London Child Guidance Clinic; Physician, London Clinic of Psycho-Analysis, etc. New York: Emerson Books, Inc. 1942. Price $2.75.

The title suggests a combination of psychology and psychiatry. The author draws on a wealth of material from Maudsley Hospital for the Insane in London and his contacts with the several hospitals and child guidance clinics in the same city are reflected in the text. The book is well written and divided into appropriate chapters. There are no illustrations but there are a number of tables, some of the latter being rather bulky. It is interesting to note his discussion of personality in connection with psychoneuroses and the more certain neuroses. He admits frequent difficulties in separating these two groups. His writings also suggest the difficulties as experienced by the author and others relative

to the borderline cases. His bibliography may not prove satisfactory to the reader. A number of references in the text are not indicated in his bibliographic list. Personally, the reviewer would rather see a more complete bibliography and somewhat less attention given to tables if space had to be conserved. The book may appeal to the general practitioner but should appeal especially to those interested in neurology and psychiatry, psychologists, social service workers and graduate nurses. A. L. S.

Carcinoma and Other Malignant Lesions of the Stomach. By Waltman Walters, B.S., M.D., M.S. in Surgery, D.Sc., F.A.C.S., Professor of Surgery, University of Minnesota (Mayo Foundation); Commander, Medical Corps, United States Naval Reserve, etc.; Howard K. Gray, B.S., M.D., M.S. in Surgery, F.A.C.S., Surgeon, Mayo Clinic, etc.; James T. Priestley, B.A., M.D., M.S. in Experimental Surgery, University of Minnesota (Mayo Foundation), etc., and Associates in the Mayo Clinic and Mayo Foundation, Rochester, Minnesota. With many illustrations. Philadelphia and London: W. B. Saunders Company. 1942. Price $8.50.

This is another clean-cut, well written Mayo Clinic monograph. As usual it is written by a large number of contributors, most of whom speak with real authority.

The diagnosis of cancer of the stomach is considered in the usual way. The greatest emphasis is placed on the fallability of all methods and throughout the book it is repeated time and again that the microscope is the only certain diagnostic tool. There is perhaps a little less enthusiasm than is warranted concerning the possibilities of assistance from the gastroscopist. Diagnostic pitfalls and illustrative cases are presented. It is not possible to misunderstand the author's main premise—that surgical procrastination in the presence of the slightest possible doubt of benignancy is bad medicine.

The pathology is well presented by both Broders and MacCarty; the physiologic disturbances associated with cancer of the stomach are discussed and the surgery is considered in detail.

Operating room technic, set-ups, preoperative and postoperative care and diets are all discussed.

The volume concludes with the statistical data which are the basis for the work. These are given in table form and are quite lucid.

For those who are doing good gastro-enterology this volume presents little which is new. The important angle is that those are the ones who will likely read it and not the ones who really need it.

A current monograph on this subject is needed every ten to fifteen years—and this is a good one. J. M. R.

Collected Papers of the Mayo Clinic and the Mayo Foundation. Edited by Richard M. Hewitt, B.A., M.A., M.D.; A. B. Nevling, M.D.; John R. Miner, B.A., Sc.D.; James R. Eckman, A.B., and M. Katharine Smith, B.A. Volume XXXIII, 1941. Philadelphia and London: W. B. Saunders Company. 1942. Price $11.50.

These annual editions of the "Collected Papers of the Mayo Clinic and the Mayo Foundation" make formidable volumes that are a tribute to the industry and application of the staff. Although there are 659 articles printed or listed upon the 1,087 pages of this volume, there is listing of 442 articles by title only. The first section features "Aviation Medicine" because of the timeliness of this topic. The section on the "Alimentary Tract" takes the most pages with "Genito-Urinary Organs" running a close second.

Every department seems to receive ample space for an exposition of the best work of the year by every staff member who has applied himself to the printed word. Many of the articles are lifted from the *Proceedings of the Staff Conferences* that is now a biweekly publication. To those physicians and surgeons who have access to and really do read the literature of their specialty, this volume can serve only for the purpose that provides its title. To those who are denied access to medical libraries this book becomes an important source and record of progress in all of the specialties. It is not burdened with bibliographies but it is indexed generously. Reviewing a volume of this type is about like trying to review a dictionary or an encyclopedia for this volume is a part of the language of medicine in America. E. H. S.

Cancer of the Larynx. By Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., Honorary Professor of Bronch-Esophagology and Consultant in Broncho-Esophagologic Research, Temple University Medical School, Philadelphia, and Chevalier L. Jackson, A.B., M.D., M.Sc. (Med.), F.A.C.S., Professor of Broncho-Esophagology, Temple University Medical School, Philadelphia. With 189 illustrations on 116 figures, and five plates in colors, containing 50 illustrations. Philadelphia and London: W. B. Saunders Company. 1939. Price $8.00.

This book is an excellent addition to the library of the general practitioner and should be required reading for the practicing laryngologist and resident physician who plan to take the American Board in Otolaryngology. It is a particularly timely book in that cancer of the larynx is curable in 80 per cent of the cases if the diagnosis is made early and almost 100 per cent fatal if the diagnosis is made late.

The book is divided into three parts, namely, Procedures, General Considerations and Historical Notes. The first part, Procedures, deals with diagnosis of the lesion, laboratory procedures for differential diagnosis, choice of treatment and a step by step detail, profusely illustrated, of the various operative procedures.

The choice of procedure in this section is particularly worth while. Dr. Jackson stresses that laryngofissure for the purpose of diagnosis or decision between laryngofissure and laryngectomy is a relic of pre-endoscopic days. Endoscopic examination and biopsy should be done routinely before any method is decided upon.

The second part of the book, General Considerations, deals mainly with borderline cases and rare growths, precancerous conditions and prophylaxis of cancer of the larynx. This section gives a clearer insight to some of the commoner benign tumors as well as some of the rarer forms of tumors and inflammation.

The third part of the book deals with the history of cancer of the larynx with names of men and dates of the steps in the progress of diagnosis and treatment of this disease. J. C. H.

Neuroanatomy. By Fred A. Mettler, A.M., M.D., Ph.D., Professor of Anatomy, University of Georgia School of Medicine, Augusta, Georgia. With 337 illustrations, including thirty in color. St. Louis: The C. V. Mosby Company. 1942. Price $7.50.

This book is designed as a text for medical students. It covers more material than the usual book of this type, largely through conciseness. The author has stressed those parts of his subject which relate to practical medicine and especially has emphasized topics in which he has found clinical clerks and interns to be deficient. It is well organized from a pedagogic standpoint. There are many well chosen illustrations which add considerably to the book.

The book is divided into two parts. The first part takes up the gross anatomy of the spinal cord, the meninges and the brain. The second part takes up the microscopic anatomy of the spinal cord and the brain. D. J. S.

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CLINICAL DIAGNOSIS OF CANCER OF THE BREAST

ARTHUR PURDY STOUT, M.D.

NEW YORK

Physicians who see a good deal of tumor work have been impressed by the apparent fact that very few physicians are properly familiar with the physical signs of breast cancer and that, therefore, procrastinating counsel is given all too frequently to women who seek advice about lumps in the breast. It is the experience at the Presbyterian Hospital, New York, that women with breast cancers, who have sought advice from physicians have been delayed an average of 8.7 months before curative therapy is undertaken. For this reason it has seemed justifiable to me to tell something about the technic of breast examination used in the Neoplasm Clinic at the Presbyterian Hospital.

Since by far the most important feature of such an examination is to determine whether or not a woman has a cancer or merely a suspicious lump; before discussing the technic of examination I want to say a few words about the ways in which cancer can grow and spread in the breast for only by knowing this can one understand the signs.

Cancers extend from their primary site, which in the breast is usually the upper outer quadrant, in several different ways. The commonest is by direct infiltrative growth and this growth is accompanied by the formation of fibrous tissue which tends to contract and pull upon surrounding structures. When the growth is toward the skin surface there is first dimpling, next solid fixation, then reddening or bluing and finally ulceration. When the growth is toward the pectoral sheath, it becomes increasingly difficult to move the tumor on the sheath, the growth terminating with solid fixation and finally infiltration of the muscle.

The second method of extension is along the duct system. This easily carries the tumor to distant parts of the gland and most frequently toward the nipple. Occasionally it grows from the ducts into the epidermis of the nipple and spreads into the surrounding epidermis of the areola, thus producing the superficial exudative erosive lesion called Paget's disease. It is well to remember that Paget's disease of the nipple is always an outward manifestation of breast cancer.

The third common method of spread is by the lymphatics. When emboli occur, they lodge in the axillary, supraclavicular and mediastinal nodes and grow there as metastases. When growth in the lymphatics is continuous and retrograde toward the surface, the skin lymphatics are blocked and there occurs a form of edema well described by the terms "pigskin" or "orange skin." This always first appears caudad to the tumor. Pigskin edema may appear in inflammatory lesions but, if it does, it is usually directly over the lesion and not below it. Spread through the surface lymphatics produces secondary nodules of cancer in the skin and, in certain cases, a slow thickening and hardening which may extend far beyond the mammary region. When this happens it has been likened to a breastplate and is called cancer "en cuirasse."

Finally, cancer may spread through the blood stream and give rise to distant metastases, especially in the lungs, bones and abdominal viscera.

The growth of cancer in the breast sometimes is associated with a localized inflammatory reaction of a peculiar type in which the skin of the breast is reddened with localized heat and edema but usually without pain or elevation of body temperature. These phenomena may mask the cancer and make careful examination necessary to locate it. Inflammatory cancer, as it is called, is peculiarly malignant and I have never seen a case cured.

Equally malignant are those cancers which occasionally develop during pregnancy and lactation, although fortunately their number is small. This prompts me to warn that about 2 per cent of all mammary cancers occur in women under 30 so that at no age is it justifiable to regard lumps in the female breast as of no consequence.

With these facts in mind, let me demonstrate the methods which are pursued in the Presbyterian Hospital in examining the breast. The patient used

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for illustration is a 45 year old housewife who came to the Clinic complaining of a painless lump in the left breast of nine months' duration. The patient is stripped to the waist and her clothes arranged so that they will not slip down. She is seated with arms down, hands in lap and shoulders level. The breasts are found asymmetrical, with the left one elevated and there is axial deviation of the nipple. There is also a dimpling of the skin and this overlies a hard mass 2 cm. in diameter. She is asked to raise her arms and all these features are accentuated.

The next position is standing and bending forward at the waist which can be done if the patient holds on to the back of a chair to keep from falling. The normal breasts, even if there is a slight difference between them, will hang forward away from the body freely and there will be no accentuation of their inequality, but in this patient the left breast does not hang away from the body as freely as the right and again the difference between the two breasts and the dimpling is accentuated. In all three of these positions the tumor is palpated and it is learned that it is hard, moves with the breast tissue and not independent of it, that this breast does not move as freely on the underlying pectoral sheath as does the right breast and that moving the lump accentuates the dimpling in the skin.

The patient is next asked to lie down on her back. In order to examine the left breast, she rolls slightly toward the right, raises the left arm and keeps the right at her side. This tends to spread the breast tissue widely over the chest wall and brings all parts of it as close to the surface as possible. Before palpation a little talcum powder is spread on the skin. This permits the palpating fingers to slide easily over the surface so that impressions coming to the brain from the skin do not mask the impulses coming from the deeper mammary tissues. During palpation the eyes are closed to remove all visual impressions and allow one to concentrate more intently. These refinements may seem superfluous but I believe very strongly that rough palpation or squeezing of the breast can cause metastases from a cancer, and I am opposed to any method of examination which causes pain.

In order to determine whether or not the tumor is fixed to the pectoral sheath, the breast and tumor are moved first from side to side, with the pectoral muscle at rest. Then the pectoral muscle is contracted by asking the patient to grasp the hip and squeeze it strongly. If the tumor is attached to the sheath by fibrous strands its mobility will be restricted. This does not occur in chronic cystic disease or with benign tumors. The maneuver may be done in the erect position.

Determination of the presence or absence of enlarged axillary nodes is always important and it is surprising how easy it is to miss quite large masses by careless palpation. The patient's arm is relaxed and supported by the examiner and palpation is done with the extended fingers. Nodes can be felt if the axillary tissues are rolled under the fingers from above downward and from side to side.

Palpation of the supraclavicular regions, which is always carried out, can best be done by standing behind the seated patient. They should always be inspected first and any inequalities noted.

In order to amplify these remarks on breast diagnosis, I shall point out certain other features.

The breasts may be symmetrical and show nothing externally and yet manipulation can bring out the telltale skin flattening which almost always suggests that a lump is a cancer.

Occasionally cystic disease may mask an unsuspected cancer. A 29 year old woman had a cyst which was easily apparent. It fluctuated and had a smooth outline. When moved it produced no puckering of skin or retraction of the nipple. Yet at operation a small cancer was found deep to it and in spite of radical mastectomy the patient died with metastases in eighteen months.

Cancers can grow to an enormous size without skin ulceration and with extensive orange skin edema affecting all of the lower part of the breast.

The presence of skin edema, even of very slight extent, is always a grave prognostic sign in breast cancer. In one case a small patch was just below the nipple. The tumor was above the nipple and had caused nipple retraction.

A cancer solidly fixed to the chest wall with invasion of the pectoral muscle which cannot be moved independently from the muscle is regarded as inoperable.

The skin in inflammatory cancer is red, edematous and hot, but with no pain or elevation of body temperature. Such a case is inoperable.

Cancer in a case of suppurative lactational mastitis which has been incised several times and the presence of the cancer only determined by biopsy is regarded as inoperable.

Superficial erosion of the nipple caused by infiltration of the epidermis with cancer cells coming from the ducts, Paget's disease of the nipple, is always cancerous and should be treated by radical mastectomy.

Axillary metastases may reach a huge size and become fixed to the surrounding tissues. This is a sign of advanced cancer.

My associate, Dr. C. D. Haagensen, and I see a great many of the breast cases in the Neoplasm Clinic of the Presbyterian Hospital, New York, and we have formulated certain principles for our guidance in recommending treatment. We believe that the one curative procedure is radical mastectomy and that this should be undertaken without delay after the diagnosis is made. We do not believe that postoperative prophylactic radiotherapy improves the woman's chances of ultimate survival nor can we find any evidence that preoperative radiotherapy does anything except postpone operation. On the other hand, if a case is so far advanced that the radical operation fails to cure, our experience is that life will actually be shortened by that

procedure in comparison with no treatment at all or intensive radiotherapy.

How can one tell whether or not a case is operable? To determine this we took, one by one and also in combination, certain physical signs and noted the follow-up results of radical mastectomy in all of the cases which showed these signs in our series. If we found that radical mastectomy resulted in no cures at all, we felt that the operation had been futile.

The result of this investigation gave us our clinical criteria of inoperability (table 1). The first

Table 1. *Clinical Criteria of Inoperability*

1. The "inflammatory" type of breast carcinoma.
2. Extensive edema of the skin over the breast.
3. Satellite tumor nodules in the skin over the breast.
4. Edema of the arm.
5. Intercostal or parasternal nodules.
6. Proved or clinically unquestionable supraclavicular metastases.
7. Distant metastases to the contralateral axilla, lungs, bones, liver, elsewhere.
8. The development of the breast tumor during the course of pregnancy or lactation.
9. The presence of any two or more of the following signs of locally advanced breast carcinoma:
 a. Ulceration of the skin.
 b. Edema of the skin of limited extent.
 c. Fixation of the tumor to the chest wall.
 d. Fixation of the axillary lymph nodes to the skin or the deep structures of the axilla.
 e. Axillary lymph nodes measuring 2.5 cm. or more in diameter (clinical measurements).

eight we speak of as mandatory; that is, the mere existence of each physical sign alone means that the patient cannot be cured by any procedure. The last group of signs are not contraindication if present alone but, if two or more are present in the same patient, it is recommended that no operation be done.

If radical operation is denied what shall be done with the patient? We investigated the survival rate of patients with breast cancers which had been dealt with in various ways from onset to death. Untreated cases and those regarded as inoperable and given only palliative therapy without the use of either surgery or radiotherapy had a mean survival rate of from forty to forty-two months. Patients now regarded as inoperable by us, but formerly treated by radical mastectomy, had a mean survival rate of only thirty-two months. Cases now regarded by us as inoperable but formerly treated by simple or partial mastectomy had a mean survival rate of thirty-eight months. A more recent group of inoperable cases treated by modern methods of intensive radiotherapy had a mean survival rate of only forty and a half months but had considerable amelioration of symptoms. Thus, we concluded that radical operation in inoperable cases actually shortened life, simple operations and other palliative measures had no appreciable effect, while modern intensive radiotherapy, although it did not lengthen life, gave the greatest amelioration of symptoms.

Thus our procedures are guided by experience. Cancers that have some hope of cure, however remote, are treated by radical surgery without radiotherapy except for the treatment of metastases. Hopeless cases are treated by irradiation and never by radical surgery. Occasionally simple mastectomy is used for advanced ulcerated cases which have not been controlled by radiotherapy.

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THREE IMPORTANT ADVANCES IN OBSTETRIC THERAPY

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Obstetric analgesia is of course an old story to everyone, in its general aspects; yet there is a vast difference of opinion as to analgesic agent and method. The idea that every case can be managed efficiently by a standardized rule is absurd. Likewise, devotion to a single analgesic agent, excluding others, is illogical. The function of an analgesic is to relieve pain. Therefore, analgesics are not indicated if there is no pain, and should be employed when the degree of pain justifies. Since the patient alone knows whether the pain is severe enough to require relief, the patient should be the judge as to the time of administration of the analgesic. The very common practice of giving analgesics when the cervix is dilated to some given number of centimeters or "fingers," regardless of the total absence of pain in one case and of the hours of previous suffering in another, is ridiculous.

At the onset of labor the patient should be told to notify the doctor when the pain becomes severe enough to make her want relief. When she so indicates, a rectal examination should be made to determine the degree of advancement in labor.

Table 1. *Basic Choice of Analgesic*

Stage	Progress in Labor	Delay in Descent of Head	
		Improbable	Probable
Obliteration but no dilatation	Rapid or normal	Barbiturate or paraldehye with hyoscine	Morphine-hyoscine
	Slow	Morphine-hyoscine	Morphine-hyoscine
Dilatation up to 3 cm.	Rapid or normal	Barbiturate or paraldehye with hyoscine	Morphine-hyoscine
	Slow	Morphine-hyoscine	Morphine-hyoscine
Dilatation 3 to 7 cm.	All cases	Barbiturate or paraldehye with hyoscine	Barbiturate or paraldehyde with hyoscine
Dilatation 8 cm.	Rapid or normal	Rectal ether (rupture membranes)	Barbiturate or paraldehyde with hyoscine
	Slow	Barbiturate or paraldehye with hyoscine	Barbiturate or paraldehyde with hyoscine
Second stage	Rapid	Inhalation	Rectal ether
	Normal or slow	Rectal ether	Rectal ether
Perineal stage	All cases	Local or inhalation	Local or inhalation

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Upon this, considering also the duration of labor up to this point and any factors influencing the subsequent duration of labor, the choice of the appropriate analgesic agent should be made. The following table indicates the rough basis for the choice of the analgesic agent. It must be remembered that other factors should be taken into consideration in each individual case.

COMMENT ON THE ANALGESIC AGENTS

Morphine.—Although there are some very impressive figures to the contrary, the consensus of opinion is still to the effect that morphine should not be given within four hours of the probable birth of the baby because of the excessively depressant effect of morphine upon the fetal respiratory center. On account of the extraordinary susceptibility of the fetus, the dose should not exceed ⅛ grain. Morphine is especially valuable in cases of spastic cervix and in cases in which fear causes pain to bring about a psychoneurotic inhibition of the uterine contractions.

Hyoscine (scopolamine) is purely an amnesic agent. Alone, it is not of much value but it is of great value in compensating for deficient action of the hypnotic analgesics. It should be remembered that the amnesic action is limited to preventing the impression of new images upon the center of memory during the period of its effect. It does not obliterate already formed memories. Hence, it should be given early in labor in doses of 1/150 grain and repeated if necessary at intervals of not less than four hours in doses of 1/200 grain. The action of hyoscine is sometimes "full of holes," the patient remembering being placed on the stretcher, bright lights and snatches of conversation; but fortunately the recollection of pain is rare. Through the use of hyoscine with the barbiturates or paraldehyde I have obtained (roughly) 60 per cent of total postpartum ignorance of the events of labor, 30 per cent of ignorance of pain and 10 per cent of relative failure of analgesia (about 7 per cent are due to lack of cooperation on the part of the patient). Without hyoscine these percentages are (roughly) 40, 40 and 20 respectively.

The Barbiturates.—Of these the most frequently used (on the basis of relative safety and efficiency) are sodium amytal and pentobarbital. Studies at the University have indicated no material difference between the two drugs (one series indicated a slight superiority of one; the second series, of the other). Pentobarbital has the advantage of more rapid action. After many experiments as to the dosage, initially based on a dose-weight ratio, the conclusion has been drawn that the optimum initial dose is 6 grains. Larger doses in susceptible individuals caused a fair percentage of toxic reactions, smaller doses in resistant individuals and in most normal individuals caused troublesome delirium and failed to effect analgesia. In the resistant case an additional dose of 3 grains may be given if the initial dose is ineffective. In cases of prolonged labor, additional doses of 3 grains may be given at intervals of not less than five hours with a probable total limit of 12 grains. The barbiturates give rise to a troublesome incidence of toxic delirium with an intense desire to "go places." As one student expressed it, "That stuff would be O. K. if it didn't give 'em the running fits." Since the patient may spring out of bed from an apparently sound sleep without the slightest warning, the labor bed should be equipped with high sides and an attendant should be present constantly to keep the patient from injuring herself. (The Bartholomew bed is excellent for such cases.)

Paraldehyde is as efficient as the barbiturates and has the advantage of being less toxic and of causing less restlessness. Even if delirious, the patient's movements are ordinarily not violent and the effort to get out of bed is rare. The disadvantage of paraldehyde lies in its abominable taste (causing vomiting) and its irritating effect (causing expulsion from the rectum). From a study conducted by Dr. H. L. Gardner, the conclusion was reached that the most effective mode of administration is by duodenal tube; but this is very distressing to most patients and the tube frequently fails to enter the duodenum. Theoretically the intravenous route should be most satisfactory; but, as shown by Gardner, the effect is apt to be too profound and too brief for practical use. Most of my cases are given 30 cc. of paraldehyde in 3 ounces of olive oil, per rectum. (I have not seen any appreciable value in attempts to anesthetize the rectal mucosa with other agents.) For the technic, see the paragraph on rectal ether. If given by mouth it is retained best if chilled almost to the freezing point and followed instantly by a drink of something with a strong and lasting pleasant taste.

Rectal Ether.—If the patient is willing to go to the proper stage in labor, rectal ether is the most satisfactory of all analgesics provided that disproportion or malposition to a degree which will prolong the second stage to more than two hours is not present. It is not appropriate after the external sphincter has become relaxed or when the labor may be terminated by a few more pains or by the use of low forceps. In a fairly extensive study it was found that approximately 1 per cent of patients are resistant to the average dose of ether (poor analgesia or none), and 2 per cent are hypersusceptible (contractions cease until the effect of the ether wears off). The standard dose is 2½ ounces, thoroughly mixed with 1½ ounces of olive oil. No advantage whatever has been found in the addition of any other substances such as quinine or local anesthetic agents. The delirium produced by rectal ether is apt to be of a pleasant type; the patient's speech is fairly coherent and her ideation extravagant. As a result, labor under rectal ether is apt to become a hilarious occasion, which helps to alleviate the suffering of the attendants. For maximal efficiency, the technic should be carried out carefully.

TECHNIC FOR THE USE OF RECTAL ETHER

1. Insert a 36 F. or larger catheter or a small rectal tube as high as possible (not less than 6 inches). If the tip of the tube catches in a fold or valve of the rectum, a small amount of the ether-oil mixture should be injected. This smoothes out the fold and permits the deeper passage of the tube. If the head is in the pelvis, the catheter always should be passed above the point of pressure (this reduces greatly the possibility of expulsion of the solution).

2. A large-sized urethral syringe with the bulb detached is connected with the catheter and filled with the ether-oil mixture; the bulb is attached and the mixture expelled slowly into the rectum. If a syringe of less than 4 ounce capacity is used, the bulb is detached, the syringe refilled and so on until all of the mixture is in the rectum.

3. Holding the syringe vertical with its tip at the level of the anus and the bulb detached, the mixture is allowed to rise and fall in the syringe with the peristaltic waves and with the contractions of labor. The patient must be warned constantly to "squeeze up" tightly and under no circumstances to bear down. If a small syringe is used it can be tilted and the excess of the mixture allowed to run over into a container to be reused. Within from ten to twenty minutes the irritability of the rectum is overcome and the catheter is withdrawn.

4. The membranes are ruptured when the full effect of the ether is apparent.

THE INTRAVENOUS USE OF MAGNESIUM SULPHATE IN ECLAMPSIA

This may well be regarded as the greatest improvement in obstetric therapy of recent years. Originally very skeptical, especially in regard to its safety, I owe to J. R. McCord the inspiration and confidence with which I now make use of this method. The technic is simplicity itself. The diagnosis of eclampsia having been established, gm. 2.0 of magnesium sulphate is injected intravenously, preferably as 10 cc. of a 20 per cent solution. If improvement does not occur, the dose may be repeated at three hour (in very severe cases two hour) intervals, the total dosage in twenty-four hours not exceeding 16 gm. The use of large doses (from 25 to 50 gm.) of glucose intravenously (ordinarily in concentrated 50 per cent solution) is of great value. The simultaneous use of other drugs such as morphine and veratrum viride is of no apparent value. All of the comments which I have heard unfavorable to the magnesium sulphate treatment of eclampsia have come from men who employed other drugs, or who did not give adequate amounts of magnesium sulphate or who did not give it intravenously.

The usual immediate result of the treatment is apparent as the rapid or gradual cessation of convulsions. After a period of stupor the patient rather rapidly returns to what seems by comparison a normal state. The mind is clear, edema is reduced and even amblyopia (if due only to edema and not to actual retinal damage) clears up. At the end of from twenty-four to seventy-two hours the shock and exhaustion have been compensated for and the pregnancy may then be terminated by the appropriate means (induction of labor usually, rarely cesarean section, and this always under local anesthesia). The whole picture in favorable cases is spectacular and incredible.

The average mortality of eclampsia under other methods of treatment, as collated from the reports of numerous writers, is in the neighborhood of from 22 to 26 per cent. Using magnesium sulphate, Lazard and McNeile report a mortality of 13.3 per cent, McCord about 5 per cent. My own series is too small to permit of valid percentage calculations but the sole mortality occurred in a patient moribund upon admission. These figures, together with the simplicity and universal applicability in any environment, make this method well worth general adoption for both hospital and home deliveries.

THE INTRAVENOUS USE OF ERGOTRATE IN THE THIRD STAGE OF LABOR

Second in importance to the intravenous magnesium sulphate treatment of eclampsia, only because of the greater mortality of eclampsia, is the intravenous use of ergotrate in the management of and prevention of hemorrhage in the third stage of labor. As in the case of magnesium sulphate my fear and skepticism were overcome, in this instance through Howard Kane's experience.

Given improperly, ergotrate may give rise to various unpleasant results, the most common of which is a tetanic spasm of the uterus causing retention of the placenta. Apparently, also, there is some deterioration of ergotrate in solution if the ampules are kept out of the icebox over long periods of time. The use of this apparently deteriorated ergotrate may be followed by a sudden relaxation of the uterus with resultant hemorrhage two or three hours after delivery.

The essential point in technic is that the injection be made just as the head is crowned, when it is certain that no obstacle such as a contracted outlet will interfere with its immediate delivery.

The placenta almost always separates in from three to five minutes after the delivery of the baby and is promptly expelled into the vagina. This rapid separation occurs so uniformly that if the placenta is within the uterus at the end of ten minutes it is almost certain that one has to deal with either an adherent placenta or with a tetanic contraction of the uterus. The membranes, as is logical, do not separate so rapidly, therefore, it is necessary to take the proper precautions against leaving a fragment of membrane in the uterus when the placenta is removed. I have seen no instances of retention of a part of the placenta, an accident which logically might be predicated from the rapid separation. The interval required for separation and expulsion of the placenta is usually exactly

adequate for the repair of the episiotomy so that no time is wasted.

I have, as yet, made no exact estimations of the amount of blood lost. Certainly the average is considerably less than 100 cc. In a few instances in which a Schultze mechanism prevented the escape of blood, the amount of blood in the inverted sac measured from 28 to 60 cc. The area of blood staining on the drapes is often larger from the episiotomy than from the extrusion of the placenta.

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TREATMENT OF BRIGHT'S DISEASE

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The aims of treatment differ in the three stages of Bright's disease, hence it follows that these stages must be differentiated clearly. The first of these, the acute phase, is characterized by edema, probably of inflammatory origin, the occurrence of an infectious process, rapid reduction of renal efficiency, hematuria, proteinuria and moderate rise in arterial pressure. The second, the chronic phase, is characterized by edema of hypoproteinemic origin, slow progressive loss of renal efficiency, proteinuria, moderate hematuria and often moderate or marked hypertension, although not always. The third, the terminal phase, is characterized by gradual disappearance of the edema of the chronic phase with rise toward normal of the plasma proteins and substitution of the hypoproteinemic edema by the edema of heart failure, reduction in renal efficiency to below 20 per cent of normal urea clearance, polyuria often with diminished excretion of protein, hemorrhages, exudates and papilledema of the eyegrounds, often marked rise in blood pressure, acidosis, heart failure, itching and finally convulsions and coma.

The aims of treatment in these three phases are: (1) acute phase, to prevent the disease from becoming chronic; (2) chronic phase, to maintain the patient's tissue against the ravages of a chronic wasting disease, (3) terminal phase, to make exitus as easy as possible.

ACUTE BRIGHT'S DISEASE

The onset may be sudden and stormy, often following an infection, or it may be insidious without definite evidence of infection. The transition into the chronic phase may be accompanied by so few signs and symptoms that no acute phase is detectable and by the time the patient seeks medical advice the disease already has become chronic. Indeed, it may be questioned whether they ever have passed through an acute phase.

Clinical experience has shown that patients with the sudden, turbulent, bloody onset, despite the lugubriousness of the moment, have a much better outlook for cure than those with an insidious onset. The patient in whom the onset is gradual, whose symptoms are mild and in whom renal efficiency is already low is the one who has acquired the chronic disease subtly.

Edema usually appears over the face and hands with less extensive involvement of the legs. It is not so dependent on gravity as in chronic nephritis. Measurement of the plasma proteins shows them to be normal and the globulin fraction often is increased, presumably as a result of infection. It is believed that the edema is caused by increased permeability of the capillaries which allows escape of plasma proteins into the tissue and accumulation of an amount of water sufficient to satisfy the osmotic requirement of the exuded proteins. This edema requires no treatment. It serves the useful function of calling the patient's and the physician's attention to the onset of a serious disease. In some patients transition from the edema of acute nephritis with normal plasma proteins to the edema of chronic nephritis with hypoproteinemia is very rapid. This is not a good prognostic sign but need not preclude recovery. It is a sign which should be watched for because it warns that treatment must be greatly prolonged.

Infection usually precedes the onset of acute nephritis. The usual invader is the hemolytic streptococcus or the minute beta-hemolytic streptococcus. Occasionly the pneumococcus is the cause, more rarely the staphylococcus. It is perhaps a wise rule to treat acute nephritis as though it were an acute infectious process. There seems no reason, therefore, for withholding the adequate doses of either sulfanilamide or sulfapyridine. These drugs never should be given to a nephritic patient without determining their concentration in the blood because their excretion is interfered with by reduced renal function, hence, toxic concentrations may be reached long before similar doses would do so in normal persons. The dosage, therefore, is controlled by establishing a blood level of about 10 mg. per cent for sulfanilamide and from 5 to 7 mg. per cent for sulfapyridine. Except for toxic effects of these drugs, the only danger appears to be the formation of concretions in the kidney due to precipitation of the relatively insoluble acetyl derivatives of sulfapyridine. Occasionally edema becomes more marked when they are administered.

It is desirable that the temperature of the room be kept between 76 and 78 F. and as constant as possible; that the patient wear warm pajamas, preferably with socks, and that the nursing care be that of an acutely ill patient. Bathroom privileges should not be allowed.

There is some divergence of opinion regarding the surgical treatment of foci of infection. The utmost gentleness should be employed in any treatment during this stage and operations should be postponed until the infection and the nephritis have slackened in their intensity. When this has

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occurred, it seems wise to do such procedures as tonsillectomy, sinus washing and extraction of abscessed teeth as seem indicated. During the height of the infection only emergency operations should be done, such as appendectomy, lancing the ear drum or peritonsillar abscesses.

Rest.—Insufficient attention ordinarily is given to the amount of rest required by a patient with Bright's disease. It has seemed to me that since there is no hope of reducing the work of the kidneys by reducing the diet below the energy requirements of the body, the logical concern is to curtail the requirements. This can be done by insisting on the patient's remaining quietly in bed with the least possible disturbance to body and mind. The patient is to try and "live like a vegetable." It is wise to explain this early in the course of the disease when the patient feels ill. If properly instilled, the regimen will carry through most of the period of convalescence. It is particularly important, if feasible, to remove a child from the home and its parents, allowing visiting only twice a week. I repeatedly have found that, under an orderly routine, no difficulty is experienced in keeping the child quiet or getting the diet consumed.

Prescription of rest, unless given with conviction, loses its effectiveness because it is so commonplace. It is difficult to prove that prolonged and adequate rest changes the course of the disease from the acute to the healing stage instead of to the chronic stage. But it seems fair to say that the practice is becoming commoner in the clinics most experienced in the treatment of nephritis. When the disease becomes chronic, there is no longer any especial reason for prolonged rest.

Diet.—During the first few weeks of the disease, if the onset is stormy, it makes little difference what is fed since the patient ordinarily has little appetite. In general, the rule may be followed that the diet should be one that would be given during the course of an infection.

After the first few weeks more food should be given and this may consist of balanced amounts of carbohydrate, fat and protein. Sharp difference of opinion exists as to whether low or high protein diets should be fed. The protagonists of each theory, from time to time, have held the field only to lose it when a new bit of experimental evidence has been turned up. There are excellent arguments on both sides and it appears that by steering a middle course many of the advantages of both views can be utilized.

Roughly, from 40 to 60 grams of mixed vegetable and animal protein are given to an adult. Children require somewhat more; from 2 to 3 grams per kilogram of body weight.

Since the requirement for vitamins is greatly increased during infectious and wasting diseases, more than the usual amounts should be given to patients with nephritis. These should include vitamins A, B complex, C and D.

There is no reason for limiting the salt and water intake unless hypoproteinemic edema or heart failure is present.

Convulsions and Cerebral Complications.—Convulsions are rare in adults and not uncommon in children. They terrify the parents but experience has shown that their results are not as lugubrious as they seem, provided anuria is not present. They often are associated with a rising blood pressure, especially the diastolic. The spinal fluid pressure may or may not be elevated. They have no necessary relationship to retention products in the blood.

Their treatment consists, first, of preventing injury to the patient during the seizures and, second, of giving about 250 cc. of 50 per cent sucrose intravenously, very slowly if heart failure is threatening. Magnesium sulfate (20 cc. of 10 per cent solution repeated several times) may be used. If given intramuscularly in doses of 0.3 cc. of a 25 per cent solution for every kilogram of body weight, it has value in preventing convulsions. This dose may be repeated in four hours. Spinal tap with removal of from 15 to 20 cc. of spinal fluid is often a useful procedure.

If the convulsions continue, an intravenous injection of pentobarbital sodium (gr. iii) may be administered.

CHRONIC BRIGHT'S DISEASE

Chronic nephritis is, foremost, a wasting disease, replacing tissue with edema fluid. The prognosis is almost always bad. For these reasons the aim is to maintain adequate nutrition and enjoyment of life while it lasts, realizing fully what inevitably must transpire.

It is highly desirable to follow the course of chronic nephritis by proper laboratory procedures. Not only do these insure accuracy of diagnosis but they guide treatment and ordinarily clearly indicate the prognosis.

Edema.—The edema of chronic nephritis is due chiefly to the reduced osmotic attraction exerted by the plasma proteins on the plasma water. The result is that water passes from the blood stream into the tissues (extracellular water) and enough salt is retained by this water to make a so-called "physiologic salt solution."

Hypoproteinemia, which means reduction of both plasma albumin and globulin, causes visible edema when the normal amount of 7 grams per 100 cc. of total plasma proteins is reduced to from 4.5 to 5 grams and the albumin below 2 grams. If they are only slightly above these levels, the occurrence of edema usually will depend on whether or not salt restriction and bed rest have been prescribed.

The cause of the hypoproteinemia is often difficult or impossible to ascertain. In some patients an inadequate quota of protein in the diet is responsible; in others the loss of protein in the urine is so great that intake and synthesis cannot keep up with the loss. Perhaps in a few, the ability to synthesize plasma proteins is impaired and in others the level in the blood is set lower than in normal persons.

A second factor of great importance in the genesis of nephrotic edema is salt. It has been known for many years from clinical observation that the intake of salt influences the appearance and extent of edema. Water cannot be retained without an equivalent amount of salt, nor salt without an equivalent amount of water. Even in normal persons, large amounts of salt will produce edema. But in patients with edema and decreased colloid osmotic pressure of the blood, there is a magnified tendency to retain salt along with sufficient water to form physiologic saline solution.

A third factor in influencing the occurrence of nephrotic edema is drainage of lymph. In the stagnation edema of cardiac origin, the draining of extracellular fluid back into the blood stream is abnormally slow while in nephrotic edema it is abnormally fast even when edema fluid is accumulating. It is extraordinarily rapid in periods of diuresis.

The treatment of nephrotic edema depends on correcting the faults just described as the known causes of edema.

Restriction of salt is imperative. The patient should not excrete more than 2 grams, and if a child less than 1 gram, of salt a day in the urine and this should be ascertained by weekly analysis of the chlorides in the urine. It is surprising how many patients either through ignorance, carelessness or willfulness do not take a salt-free diet despite what appears to be sufficient instructions. The only way to be certain that the diet is salt-free is periodic analysis of a twenty-four hour urine specimen. I am convinced that the failure of low-salt diets to aid in reducing edema is, in most cases, due to failure to receive a diet actually low in salt rather than other causes. Certain patients with nephritis exhibit marked rise in arterial pressure and depression of urea clearance when as much as 15 grams of salt are taken. Replacement of the sodium with potassium chloride causes a prompt rise in clearances and fall in blood pressure.

Restriction of water is unnecessary and undesirable. Patients with nephrotic edema will not retain water unless with it they retain a physiologically equivalent amount of sodium salts. Even large volumes of water given without salt are excreted without difficulty; in fact, the diuresis may hasten salt excretion and reduction of edema.

Diuretics appear to be of somewhat limited value in nephrotic edema. Presumably by paralyzing the tubular cells of the kidneys and hence their ability to reabsorb water, diuresis is induced. The underlying fault which is causing the edema is not corrected and, therefore, the edema returns quite promptly after discontinuing the diuretic. However, the acid-forming salts may aid in the excretion of sodium, thus ridding the body of one of the agents causing edema. This fact gives these salts a definite place in treatment. The dose of ammonium nitrate is from 8 to 10 grams daily and of potassium nitrate from 10 to 12 grams. They can be given over a prolonged period if the patient is under observation. Potassium nitrate appears to cause less disturbance in the body than ammonium chloride and is, on the whole, to be preferred. The drug should be administered in 0.5 gram enteric-coated pills.

Since lymph flow is very rapid, even when edema fluid is accumulating in chronic nephritis, it seems desirable to maintain it at as high a level as possible. Massage and exercise seem to be the most practical methods. Gravity impedes the flow and for this reason when the edema is massive, the patient must be kept in bed with the limbs slightly elevated to aid in retrograde flow of the lymph. Regular massage and movements of the limbs are also of value. When the edema is of modest proportions, many patients improve when they are allowed to be up and exercise moderately. I have noticed repeatedly that patients in this state often rapidly become free of edema on leaving the hospital. Bed rest is not an unmixed blessing in the treatment of moderate nephrotic edema and should be employed with discrimination.

Diet.—Large amounts of protein are lost in the urine during chronic nephritis and must be replaced by protein taken by mouth. If too large amounts, more than 100 grams daily, are consumed, no greater benefit is derived as the patient usually loses his appetite and, even though the protein is taken, the storage of it does not appear to be greater than when the intake is lower. Clinical experience has shown that from 70 to 100 grams of protein daily in adults and 3.2 grams per kilogram of ideal body weight in children is the optimal amount.

Animal proteins should predominate. One of the simplest ways to administer proteins is by giving edible casein. It can be given as a palatable drink with several flavorings.

Definite benefits to tissue nutrition, water balance and general clinical condition result from avoiding low protein diets. Shift from low to high protein diets causes protein storage in the tissues of the patient, thus combating the wasting and malnutrition of the disease and the increased susceptibility to infection. The plasma proteins may or may not rise significantly as a result of feeding adequate amounts of protein. In general, if the patient previously has been consuming a diet low in protein, shift to a high protein diet is followed by rise in plasma proteins within a month or two. Even though the rise does not occur within this period, it should not cause discouragement as it not unusually is postponed for several months.

Many patients, especially those who are well nourished, do not respond with a rise in plasma proteins on the high protein diet. Such patients, however, should be maintained on the diet because they feel better and do not exhibit the malnutrition so evident on protein-poor diets.

It is interesting that in both animals and man, especially in children, urea clearance varies markedly with protein intake. Thus with protein intake of 0.5, 1.0, 2, 3 and 4 grams per kilo per day,

Farr found average urea clearance of 73, 88, 178, 184 and 216 per cent of mean normal respectively.

There is no contraindication to the administration of the usual amounts of fat and carbohydrate in the diet. Fat has been restricted by some physicians in the belief that the usual lipemia of the nephrotic stage of chronic nephritis is so reduced. However, careful investigation has shown that the postabsorptive level of fat in the blood in patients is influenced little by the fat content of the diet. Nor is there any evidence that fat combustion is abnormal in this disease.

The vitamin requirement of chronic nephritic patients is probably higher than normal, hence, it seems desirable to supplement the diet by regular use of one of the reliable mixed vitamin concentrates.

TERMINAL BRIGHT'S DISEASE

When the terminal stage of the disease has been reached, the aim of treatment is to treat symptoms as they arise and maintain electrolyte and water balances as normal as possible but, chiefly, to make the final weeks or months of life bearable and happy. For these reasons, many of the restrictions should be raised and the patient urged to be up and about doing those things which bring him pleasure. The relatives of the patient should be told of the situation and urged to provide money, if feasible, that these pleasures may be made possible. It is, I think, a therapeutic achievement when the patient walks into the hospital and dies a few days or weeks after admission. It indicates that despite the serious disarrangement caused by uremia, life has been made bearable, even enjoyable.

The physician will recognize the terminal phase by the appearance or intensification of the morbid changes in the eyegrounds, perhaps an intensification or initial appearance of arterial hypertension, reduction of urea clearance to below 20 per cent of normal or fixation of the specific gravity of the urine at 1.010 or below. It is an interesting fact that as uremia approaches, the edema due to hypoproteinemia tends to disappear and the plasma proteins rise toward normal. But its place may, and usually is, taken by edema due to heart failure, or, they may coexist. The latter is due chiefly to stagnation of the blood stream with local tissue anoxia and increase in permeability to proteins of the capillaries.

It is desirable to add to those laboratory procedures employed during the chronic phase two further determinations. These are the CO_2 combining power of the plasma and the chloride content of the blood. It will be evident a little later in the discussion why this is true.

Treatment consists, first and foremost, in making the patient happy. It is certain that most patients do not enjoy a hospital bed especially. I have found it good practice to have the patient in and out of the hospital, going in whenever the patient feels all is not well or is losing heart. In some patients, cardiac failure becomes so severe that bed is the only place possible for them.

Diet.—The appetite is failing and there is nothing to be gained by forcing the patient to eat any special diet. On the whole, a diet containing only a moderate amount (30 to 40 grams) of protein seems best. The rest of it will be cared for by the desires of the patient. Often an alcoholic beverage such as creme de menthe, cognac or port wine aids the appetite when taken fifteen minutes before supper. Vitamin B may or may not aid the appetite; it is difficult to be sure.

Care should be exercised in restricting the salt content of the diet. During the terminal phase, the loss of ability of the kidneys to concentrate urine causes polyuria. This results in the washing out of the body of large amounts of salt and, unless it is replaced, may lead to hypochloremic uremia. Occasionally such a patient is seen in whom administration of salt leads to temporary recovery and life may be prolonged as much as a year and a half. The value of ascertaining the chloride content of the plasma will be evident.

While salt must be given to avoid hypochloremic uremia, the occurrence of heart failure contraindicates its use. The best that can be done is not to give too much or too little, in short, to keep the chloride content of the blood normal but avoid large excretion in the urine. While no rule holds, experience has shown that about 4 grams of NaCl is adequate. If salt is administered without equivalent amounts of water, the salt is retained. For this reason, ingestion of salt must be accompanied by enough fluid to insure adequate urine flow.

Acidosis.—The retention of chiefly fixed acids, loss of base by vomiting and the decreased formation of ammonia by the kidneys leads to acidosis. It increases the nausea and vomiting of uremia and adds the dyspnea of acidosis to the distress of the patient. It should be anticipated by administration of alkali in repeated doses of from 3 to 5 grams by mouth.

If it is necessary to give it by vein, the solid bicarbonate may be sterilized by dry heat in packages and then dissolved in sterile water or saline to make an isotonic solution (13 grams per liter). The amount of bicarbonate required to restore normal alkali reserve should be calculated from the CO content of the blood plasma. The amount required to raise the alkaline reserve to the point indicated by 60 volumes per cent of plasma CO content and pH 7.4 are indicated. Bicarbonate should not be given by hit-or-miss method since it is so easy to ascertain approximately the necessary dose from a line chart.

Anemia.—Iron is only useful in the treatment of the anemia of terminal nephritis when chronic hemorrhage is occurring. It must be given with caution because it may do more harm than good by upsetting the patient's stomach.

Heart Failure.—The treatment of heart failure during uremia does not differ from the usual treatment of it and hence will not be dealt with here. Suffice it to say that adequate doses of digitalis and moderate fluid and salt restriction form the basis

of such treatment. Diuretics are useless and should be avoided because harm may be done.

Convulsions.—It is well to prepare for convulsions during the final stage by warning the relatives of their possibility and having readily available tongue depressors well wrapped in gauze to prevent injury to the tongue when convulsions occur. Hypertonic glucose (50 per cent) given intravenously tends to lessen their frequency and severity. If they continue and cause great distress, sodium amytal (sodium iso-amyl ethyl barbiturate, Lilly) or pentobarbital (gr. iii) may be given intravenously.

Slow intravenous injection of 500 cc. of 2 per cent magnesium sulfate ($MgSO_4 + 7\ H_2O$) is often valuable. If convulsions are not controlled, the injection may be repeated but no more than once since toxic concentration of magnesium may be produced.

Itching.—One of the most distressing symptoms of uremia is intense itching. Unless it is reduced or abolished, the patient is miserable. I employ pine tar ointment (U. S. P.), Obtundia cream applied freely to the skin, and ergotamine orally (1 mg. or $\frac{1}{60}$ gr., three times a day).

Nausea and Vomiting.—These are among the most difficult symptoms to treat. They tend to be less severe if the electrolyte pattern of the blood is kept as normal as possible. Administration of glucose by vein also aids in preventing them. Moderate exercise and fresh air reduce them. Some patients find that sucking cracked ice is soothing. Bismuth subnitrate (0.65 gram) plus sodium bicarbonate (1.3 grams) may aid.

One of the most useful procedures is to insert into the rectum a capsule of sodium amytal, well lubricated and punched full of holes with the point of scissors.

The mouth should be kept clean with any pleasant antiseptic solution and the lips should be well greased with cold cream.

Pallor.—It distresses the patient to be told how pale he looks. True it is that the pallor is often ghastly. It seems worth while to try to overcome this as much as possible by means of daily treatment with either direct sunlight or an ultraviolet lamp. It certainly bolsters the patient's morale.

It is often possible and certainly desirable by careful therapeutics to allow the patient to have normal social contacts and duties until within days or weeks of the final uremic coma or cardiac failure. The physician has played his part well if the limited life of the patient has been spent with equinimity and relative physical comfort.

Lilly Laboratory for Clinical Research.

"There is no known relationship between intelligence and the presence or absence of wisdom teeth," *Hygeia, The Health Magazine* declares in a recent issue. "Apparently the notion that such a relationship exists is based on the fact that the wisdom teeth generally come into place in the jaw at the age when mental powers are fairly well developed."

PRINCIPLES IN THE TREATMENT OF BURNS

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A discussion of burns in this year of war needs no apology. A frequent accident of peacetime, burns are the commonest injury from air raids of the civilian population as well as the commonest cause of casualty in the armed forces. It must be taken for granted that physicians of Missouri will not be immune by virtue of location; they will be called upon in the next few years to treat more than the usual number of civilian accidents. More members of the Association will be called into the armed services. It will fall to the lot of those left behind to treat burned patients evacuated from overtaxed hospitals of either coast. A thorough understanding of the principles underlying the treatment of burns will save not only lives but countless dollars.

The treatment of burns is largely the prevention or relief of complications. Ideal therapy is directed toward prevention; it is far easier to prevent than to cure the complication.

The two most serious complications of a burn are shock and infection. The burn is painful and alarming and, no matter how trivial, usually is followed immediately by some degree of primary shock. With most burns there are additional injuries and the tendency both to primary and secondary shock is increased. In the haste to care for the primary shock, well-meaning persons fail to take measures to prevent bacterial contamination. The measures used in the prevention or prompt treatment of the shock and infection usually go on simultaneously; the treatment of one is interwoven with that of the other. Management of one sometimes goes hand in hand with or hampers management of the other, and they cannot be divorced wholly in practice. For purposes of discussion, however, I shall arbitrarily separate the considerations of shock and infection.

SHOCK

The primary shock of burns is similar to the circulatory collapse following any accident. It is probably neurogenic in origin and is treated by rest in the prone position, relief of pain by morphine if available and reassurance.

The secondary or delayed shock is due to loss of plasma from the circulation. The capillary bed and permeability are increased in the area of a burn. The blood plasma streams out through the capillary walls. Some of this plasma, for some hours at least, is returned via the lymphatic vessels but the loss is greater than the return and edema of the burned area occurs. The blood volume is de-

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creased and, owing to the relative concentration of cells, the blood is viscous and therefore takes greater pressure to pump through the vessels. If the plasma volume is not replenished and the plasma loss continues, circulatory collapse results.

The treatment for this shock is plasma transfusion. In spite of the fact that authorities on burns are agreed that loss of plasma is the most serious element of burn shock, physicians are still giving transfusions of whole blood. The cells of whole blood not only carry coals to Newcastle but tend to clog the circulation and precipitate renal shutdown.

Plasma transfusion should be started as early as possible in all patients who have a burn covering 10 per cent or more of the body surface.[1*] It is safer to prevent shock and more economic than to relieve it. In prevention, the plasma should be given slowly and the required amount divided over a twenty-four hour period. Ideally, the progress of the patient should be followed by bi-daily hematocrit determinations and the dosage of plasma determined by the formula of Elkinton, Wolff and Lee.[2] If there is an air raid catastrophe and laboratory facilities are unavailable or overtaxed, practically, the dosage can be judged on the basis of the surface area of the burn. It has been advised by a war committee on burns that 1,000 cc. of plasma be given for each 10 per cent of the body surface burned during each twenty-four hour period until the danger of shock is over.

I wish to give two warnings. The first is that saline or glucose solutions given intravenously may do harm. Such protein-free fluids serve to raise blood pressure only transiently and to wash plasma out of circulation into the burned area. They should be used only to start an intravenous injection in preparation for plasma administration and, after plasma has been given, to give fluid to maintain kidney elimination in patients who are vomiting. Except in cases of extreme dehydration the patient should not receive more saline or glucose solution than plasma in any twenty-four hour period.

Second, do not overheat a patient with a burn or warm up quickly one who has been chilled, as by immersion, following the burn. Blalock[3] has shown the deleterious effect of warming. With rise in temperature the vascular bed of any portion of the body increases. Shock may be precipitated in a patient in whom it is impending; the decreased blood volume must meet a greater load. Treat the decreased blood volume with plasma and then warm the patient up slowly.

Toxins might aggravate shock and organ damage. Whether they are released from burned tissues is still a moot question. There is no clear evidence pointing to or denying their existence. It is possible that one type of burn might result in such toxins, another not. Certainly there are toxins, resulting from infection, which are absorbed from the burned areas in later days. These infectious toxins undoubtedly play a role in the occasional development of a severe anemia. Whole blood transfusions are indicated in patients with such an anemia.

*Berkow has suggested a scale, based on Dubois' standards, for estimating the percentage area of a burn. A condensed form is as follows: Head and neck 6 per cent, trunk 38 per cent, upper extremities 18 per cent, lower extremities 38 per cent.

INFECTION

A burn is an open wound; it cannot protect itself against infecting organisms. Infection of a burned surface is as dangerous to the body as a whole as any other wound infection. The presence of organisms in a burn are peculiarly undesirable because they and their noxious products kill viable tissue. The second degree burn is necrosed by infection into a third degree burn. All that a third degree burn entails as contractures, grafts, prolonged hospitalization could be avoided if infection were controlled or prevented. If ever there is a place in which the "ounce of prevention" adage is true it is in the care of burns; the best way to treat the infection of burns is to prevent it.

The majority of burns are probably sterile momentarily, the instant of the accident; heat is after all an efficient bacterial exterminator. It may be that unless the burn is severe, bacteria will remain in the pores and hair follicles. On the other hand, Colebrook[4] has shown that perspiration contains bacteriolysins, particularly for streptococci, and it is unlikely that pathogenic organisms survive in these skin crypts in normal skin. (Tears are also strongly bacteriolytic.) By such means the skin rids itself of potential dangers. Unless the skin was contaminated recently, the hot water or flame may have but few bacteria to kill. There is no direct evidence but it is probable that the greater proportion of virulent bacteria on burned areas find their way there after the burn.

Communities must learn that tap water, essentially sterile, should be employed to extinguish flaming clothes in preference to dirty rugs. The cold tap water is soothing and should be used freely until the sterile agent and dressing can be obtained to protect the burn from infective organisms. People also must be instructed not to remove clothing until the wound is dressed. It is the responsibility of the medical profession to see that the laity understands the fundamental lesson that a burn at the moment it occurs is a sterile, open wound.

The profession, too, must learn respect for burns. Just one week ago yesterday I was taken to see a British sailor who had been burned at sea on a freighter. He was in a four-bed ward in a principal hospital (a good one by current standards) of the second largest port of New England. In the same room was a man with a carbuncle of the neck. The head nurse took down the dressings from the burned areas with her ungloved, unwashed hands. God knows what she had been doing just prior. A minute later, in the next room, still without washing her hands, she took down the dressing of two thyroid patients. I was escorted

by three senior staff members and an intern. I was urged to peer closely at the wounds; no one of us wore a mask. How could the patient's wound help being septic? What is more, no cultures had been taken. Septic wounds were being treated with no idea of the organisms involved. Would one treat the carbuncle of the neck this way? No! There is still abroad a notion that burns are somehow less susceptible to infection than other open wounds.

The sailor's wounds should have received all of the respect that an open wound is paid in the operating room. All, including the patient, should have worn face masks. Sterile technic should have been used with the dressing. The patient should not have been in the same room with the man with a carbuncle. And what is more, the dressing should not have been taken down just when the visiting physician happened along. Those wounds should not have been exposed except after the windows and doors had been closed and sufficient time had elapsed for all dust to have settled following sweeping and changing of bed linen.

To prevent continual bacterial contamination, some sort of coating or dressing has to be applied to the burned surface. Various agents are advocated. There is no unanimity of opinion as to which one is the best. This lack of unanimity means that the ideal has not been discovered.

DRESSINGS

What are the attributes of the ideal agent for the burned surface? First, it should form an adequate barrier against infecting organisms. This barrier should in all probability be permeable to oxygen and carbon dioxide; there are experiments suggesting that wound healing is delayed if oxygen is excluded from the surface. It should be firm and sufficiently adherent to stick without a bandage. (A bandage is readily displaced and mobility of the patient is hampered.) It should be supple enough to permit motion of joints. (Immobilized joints, particularly of the hands, result in stiffness and contractures.) It should also be tough enough to bear weight.

The coating should contain an agent sufficiently bacteriostatic to kill any pathogenic organisms present. (If infection is harbored beneath the dressing, tissue damage by the organisms is increased.)

The coating and its bacteriostatic agent must be nontoxic to viable epithelial cells and fibroblasts. Otherwise, a severe second degree burn will be necrosed into a third degree burn and regeneration of epithelium will be impeded.

All elements of the agent must be nontoxic to the organism since they may be absorbed. Underhill's[5] concept that substances from a burned area are absorbed only slowly if at all is no longer held. Tannic acid, tannic acid and silver nitrate, gentian violet and the triple dyes, sulfonamide preparations and petrolatum are advocated as having the qualities required in a dressing for a burned area. I will discuss each one of these from the point of view of the required attributes, ability to form an eschar, permeability, adhesiveness, suppleness, toughness, bacteriostasis and lack of toxicity.

Tannic acid forms an excellent eschar or tan but it is so slow in forming that the wound is open to bacterial contamination for too long a time. Tannic acid is a poor bacteriostatic agent; abscesses beneath the tan are too frequent. In addition, the acid injures viable tissue. When Davidson[6] recommended its use he thought that it did not. Recent clinical experiments at the Massachusetts General Hospital in collaboration with Dr. Bradford Cannon[7] have shown that it does.*

The addition of silver nitrate in 5 per cent solution to tannic acid increases the rapidity of the eschar formation. Such a rapid tan has its usefulness for burns in the armed forces where early evacuation is desirable. The silver nitrate probably enhances the bacteriostasis. It, however, certainly increases the damage to viable tissue[7] and more grafts will be needed. Unless tannic acid alone is used first, the silver nitrate solution causes severe pain. Such pain is evidence of its powerful action on at least nerve endings.

Recently[8] liver necrosis has been ascribed to the absorption of tannic acid. Although there are other possible factors in this poisoning it is probable that more tannic acid is absorbed than has hitherto been suspected.

Gentian violet and the so-called triple dyes have been introduced by Aldrich.[9] The eschar produced is more supple and easily removed if pus collects beneath. However, healing is delayed more by this agent than by any other so far tested.[7] Brues[10] has suggested as an explanation that gentian violet and similar dyes, when in high extracellular concentration, are taken up specifically by the nucleus and the cell dies as a result. These dyes are bacteriostatic only in the high concentrations. Dyes in low concentrations intravenously do not kill animals. Bacteriostatic concentrations do.[11]

The sulfonamide drugs are ideal bacteriostatic agents but a satisfactory base has not been found for them. Cellular proliferation of tissue cultures proceeds at the control rate in the presence of bacteriostatic concentrations of the various sulfonamides.[12] They are not nuclear staining.[10]

However, sulfonamides may be rapidly absorbed from the burned area and, if the area is large, drug poisoning may occur. The absorption is controlled by the character of the base; it is greatest from water soluble or miscible ointments. The slowly forming escharotic recommended by Pickrell[13] permits considerable absorption. A rapidly forming, nontoxic escharotic containing a sulfonamide would solve the problem of the ideal agent for a burned area.

*Donor areas, from which grafts have been removed by the dermatome knife, have been treated with various agents. The knife gives a cut of standard thickness. Portions of the same donor area are treated with two or more agents, allowing comparison of the healing. With a coating of boric acid ointment, such donor areas heal in from ten to twelve days. Tannic acid treated areas take twice as long; tannic acid plus silver nitrate solution, two to three times as long, and the triple dyes of Aldrich more than three times as long.

In the meantime has petroleum grease anything to offer in the treatment of burns? It is nontoxic to cells and it provides an excellent barrier to organisms if gauze is used with it. But it is only very slowly bacteriostatic. On the other hand, it is ubiquitous and readily available. If there is no drug store nearby, ordinary automobile grease is sterile. Why not use it? The only reason against its use is that it has to be washed off if an escharotic is to be applied.

Wet saline dressings have been recommended. Burned British soldiers exposed to sea water have done well. The obvious objection is that the dressing has to be kept moist and there is continual invitation to contamination. Irrigation bags which preclude contamination have been devised[14] for extremities but they cannot be applied to the other parts of the body. Saline baths court contamination from the rectum. Saline dressings with a sulfonamide powdered locally offer most to burns with known recent contamination and to those proven to be septic.

With these alternatives in mind, which agent should one finally choose? None of the methods which have been discussed fulfills all of the requirements of an ideal dressing. A poor method intelligently used may give better results than a theoretically good method carelessly administered. A physician, for example, who removes the triple dye coat at the first sign of sepsis beneath will achieve better results than one who puts on a less injurious escharotic but fails to attend the patient closely.

If I were burned myself, I would much prefer to have ordinary grease smeared over me in a thick coat immediately rather than to be wrapped in blankets and trundled in a conveyance to a hospital for tanning. I would not have the wounds opened again for debridement.

In contaminated wounds, debridement is obviously necessary but often it is carried out far too vigorously. Scrubbing under anesthesia is never resorted to by the surgeon considerate of tissues. In fact, one might say that if anesthesia is required, the debridement and cleansing are over-zealous and viable tissue is being damaged. Dirty burns should be cleansed by soap and water, cotton pledglets and the gentlest scrubbing.

A few warnings follow. Do not give a sulfonamide drug by mouth if the surface dressing contains one until rapid absorption from the local area has been excluded. If the surface is septic and being treated by wet dressings with sulfonamide powder, do not dust on more than 15 gm. of the drug in any one twenty-four hour period. Sulfonamides are even absorbed from the surface of granulating wounds. On the other hand, these drugs should be given by mouth routinely and in adequate doses to all patients having other types of dressings until it is assured that there is no sepsis.

Do not apply an escharotic to a burn known to have been grossly contaminated or one which is many hours old. It will only have to be taken off and the healing of the burn delayed. Apply a sulfonamide ointment or use the wet technic.

Do not apply an escharotic to the face, hands or genitalia. Contraction of the eschar may cause distortion of the face and fixation of joints and pain.

No discussion of the principles involved in the treatment of burns would be complete without mention of nutrition. Ravdin[15] recently has proven that adequate protein reserves are essential to the rapid healing of wounds. With burns it is particularly important to guard against protein depletion because it may occur precipitously. Protein is lost not only as plasma from the blood into the burned area but also as exudate from an infected burned surface. Plasma transfusions are not enough; a high protein diet must be given as soon as the patient's gastro-intestinal tract will tolerate it.

Vitamins should be given in more than maintenance doses. Certainly vitamin C has been proven to have a direct relation to the fibroblastic healing of a wound.[16] It is reasonable to suppose that various parts of the B complex through their effect on the general bodily economy would exert an indirect influence at least on healing. This may be true also of other vitamins and food substances. Indeed, attention should be paid to keeping the patient generally as well as possible. The high protein and vitamin intake should be arranged as a frequent feeding, soft solid diet. The occurrence of peptic ulcers, so-called Curling's ulcer,[17] is a frequent enough complication of burns to make an ulcer diet advisable as a preventive measure.

SUMMARY

The principles underlying the treatment of burns have been described. Shock and infection, the most serious complications, constitute the major problems. Their prevention is more expeditious than their relief. The methods of preventing and treating shock are well defined. It is essential to appreciate and preserve the original, relatively sterile nature of the burned surface. It must be treated with the respect due an open wound. The agents recommended for the prevention and care of local infection are numerous. Their qualities and faults have been evaluated. Some which offer the best protection against organisms kill viable tissue and delay wound healing. If the wound is infected, choose one which is bacteriostatic and which does as little damage to cells as possible. With intelligent concern, a poor agent is better than a good one used without thought.

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PROBLEMS IN THE TREATMENT OF LESIONS OF THE BILIARY TRACT

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In diseases of the biliary tract I have been impressed with the frequency with which the degree of pathologic change is at variance with the severity of the patient's symptoms. How frequent it is, especially among women, that the gallbladder is found to contain stones on roentgenographic examination made during the course of routine physical examination. Although most of these patients have had varying degrees of dyspepsia, some of them have never had true colic. In many cases in which operation reveals subacute inflammation of the gallbladder caused by a stone in the cystic duct, the patient may not have had recent colic. On the other hand, the symptoms may be marked and the pathologic changes may be of only moderate degree. A history of typical attacks of biliary colic is not uncommon in cases in which subacute or chronic inflammation of the gallbladder is not associated with stones. It seems evident, therefore, that the exact nature of the degree of pathologic change in the gallbladder cannot always be determined preoperatively. The important consideration, it seems to me, is recognition of whether or not the gallbladder is diseased and, if it is, whether or not the patient can be treated best by surgery. If the patient's condition permits, the most effective method of treatment, of course, is surgical.

THE SIGNIFICANCE OF CHOLECYSTOGRAMS

The accuracy of cholecystography emphasizes its great value in the demonstration of a poorly functioning gallbladder. At the Mayo Clinic great dependence is placed on the cholecystogram which demonstrates abnormal function, and equal importance is attached to the cholecystogram which discloses normal function in a case in which there is no history of disease of the biliary tract. When, however, there is a history of attacks of pain that are typical of biliary colic, or a history of gaseous dyspepsia that has persisted in spite of attempts at control by medical means, it is believed that surgical exploration of the biliary tract, as well as exploration of the stomach, duodenum and appendix, is advisable, even though roentgenologic studies of the gallbladder, stomach and duodenum do not disclose any abnormality. Mention is made of the stomach and duodenum because of the frequency with which an ulcer on the posterior wall of the duodenum, which has perforated into the pancreas, may produce colic-like pain not unlike that associated with disease of the biliary tract or edema of the pancreas associated with a secondary disturbance of motility of the pancreatic portion of the common bile duct and a mild degree of jaundice.

The decision as to whether surgical treatment should or should not be employed ought not to be too greatly influenced by the number of gallstones appearing in the roentgenogram. The following case is illustrative.

CASE REPORT

A married woman 78 years old had had a mild degree of gastric dyspepsia. The roentgenogram apparently disclosed only a single gallstone which was approximately 2 cm. in diameter. Postponement of surgical removal of the gallbladder was suggested, not alone because of the mildness of symptoms, but also because a stone of such large size is less likely to obstruct the cystic duct than is a smaller one. Three months later, however, the patient returned to the clinic because of an increasing degree of discomfort. Operation disclosed that the gallbladder not only contained the large stone, which was seen roentgenographically, but also many smaller ones which completely filled the gallbladder. Some stones had become impacted in the cystic duct and had produced acute cholecystitis and hydrops of the gallbladder.

In recent years, perhaps because of the publication of papers in which the so-called medical treatment of cholecystitis has been set forth, there has been an unfortunate tendency to deny operation to patients who have had symptoms of cholecystitis but whose gallbladders have failed to give evidence of stones on roentgenologic examination. The fallacy of withholding operation from this class of patients is apparent in view of the foregoing discussion. To allow a patient who is in good condition, excepting that he has cholelithiasis and whose diseased gallbladder can be removed at a very low risk, to proceed to the point of experiencing acute obstruction of the cystic duct or of the common bile duct, with resulting complications which increase the risk of a surgical procedure and reduce the completeness of the surgical cure, seems to me unjustifiable.

CHOLECYSTIC DISEASE SIMULATING OR COMPLICATING ANGINA PECTORIS AND CORONARY THROMBOSIS

The condition of innumerable patients who have unsuspected cholecystitis has been diagnosed as

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"angina pectoris," whereas a cholecystogram and an electrocardiogram would have clarified the diagnosis. It is true that occasional patients who have angina pectoris will experience pain which is projected into the epigastrium, and I recall in my earlier medical teaching the emphasis which was placed on the frequently fatal error of operating on the gallbladder in such cases.

Operations on patients who have a history of previous coronary thrombosis or on patients who have angina pectoris are serious procedures and, yet, the fact remains that experience at the Mayo Clinic has shown that when essential surgical procedures must be undertaken in such cases, the risk of operation apparently has been only slightly increased. In point of fact, Brumm and Willius[1] have reported a series of 257 patients who had severe coronary disease who underwent necessary surgical operations with a mortality rate of only 4.3 per cent. Thirty-two patients had healed cardiac infarcts at the time of operation.

My associates and I[2,3,4,5,6,7] have reported previously on a series of so-called handicapped surgical patients who had a history of coronary thrombosis or of angina pectoris, who were operated on safely for extensive lesions of the biliary tract and stomach. Not only have these patients survived the operation and been relieved of symptoms, but many of them have shown improvement in cardiac function. The same observation has been made by Fitz-Hugh and Wolferth[8] who were able to prove it by evidence of improvement as seen in electrocardiograms made subsequent to operation. I think this element of reasonable safety in operations on patients who have angina pectoris is worth emphasizing; primarily not only because of the important fact of safety in itself but also because recognition that such is the case might lead to further study of the possibility that intra-abdominal lesions are present, and this study would disclose the presence of the diseased gallbladder. It is possible to imagine the feeling of a patient who has had attacks of pain thought to be caused by angina pectoris and who despaired of living very long when this cardiac pain is relieved completely after removal of a diseased gallbladder.

In a recent paper presented before the meeting of the American Surgical Association, Ravdin and Royster,[9] who had studied the effects of increased pressure within the biliary passages produced artificially by injecting fluids into them through a T tube inserted at operation, were able to demonstrate that pain of this type frequently was referred to the precordial area.

LESIONS OF THE BILE DUCTS

Diseases of the bile ducts are common and often are associated with, or follow, diseases of the gallbladder and liver. They usually manifest themselves by their interference with the passage of bile through the ducts and result in biliary colic, obstructive jaundice or infection within the bile ducts, producing fever. Biliary colic may occur independently of calculi in the gallbladder or the bile duct; it may be caused by inflammation in the biliary passages or in the pancreas and liver but most frequently it is the result of the presence of calcareous material in the gallbladder or bile ducts. It may or may not be associated with jaundice but, usually, it is followed by jaundice of fluctuating degree. As in diseases of the gallbladder, some degree of infection of the bile ducts or cholangitis usually is associated with most diseases of the bile ducts. In a few cases, spasm or stenosis of the sphincter of Oddi, with and without spasm of the first and second portions of the duodenum, will produce colic-like pains in the upper right quadrant of the abdomen simulating colic caused by gallstones.

CHOLEDOCHOLITHIASIS

The frequency with which stones in the common bile duct and hepatic ducts and cholangitis are associated with disease of the gallbladder is apparent in the fact that in the course of 1,079 operations performed on the gallbladder for benign lesions (1,014 of which operations were cholecystectomy and sixty-five of which were cholecystostomy) at the Mayo Clinic in 1940,[10] it was necessary to open and explore the common bile duct in 254 cases because of dilatation of the duct. Stones were present and were removed in 149 of these 254 cases. In the other 105 cases of the 254, enlargement of the duct was found to be the result of inflammatory lesions in the pancreas and within the liver, resulting in cholangitis.

I have been much impressed with the great number of cases in which I have found stones in the common bile ducts in the course of operation on the gallbladder but in which the presence of these stones had not been suspected prior to operation.

Stones of the common bile duct had not been suspected before operation largely because the patient had not given any evidences of biliary obstruction such as jaundice or the intermittent hepatic fever of Charcot. Such experiences led to investigation by Trueman[11] and me of the percentage of cases in which stones of the common bile duct occurred without producing evidence of biliary obstruction. In 35 per cent of 200 consecutive cases in which stones had been removed from the common bile duct in the course of operations performed at the Mayo Clinic, it was found that there had not been evidence of jaundice at any time, and in 63 per cent fever had not been present.

Obviously, if stones in the common, hepatic or cystic ducts are overlooked, symptoms will persist. Rarely will stones be expelled from the common bile duct into the duodenum because the sphincter of Oddi tends to hold them within the duct. In reply to a question as to how to prevent the overlooking of stones in the common bile duct, it may be said that all stones will increase the diameter of the common bile duct. Hence, the finding of an enlarged common bile duct is an indication that the interior of such a duct should be explored. Ex-

ploration can be done with the finger if the size of the duct permits; otherwise a set of graduated scoops can be used. In most instances, the smaller stones will be picked up in the hollow of a scoop and, after the bulbous ends of these instruments have been gently forced through the sphincter of Oddi, small stones within the intrahepatic ducts, which may have escaped detection by any means, are afforded an opportunity, during the patient's convalescence, of finding their way into the duodenum.

STONES IN THE CYSTIC DUCT

Not infrequently, in the performance of cholecystectomy, an elongated cystic duct is allowed to remain and this also may contain an unsuspected stone. I have operated upon many such cases in the last few years and in all of them, at the secondary operation, not only was the stone in the cystic duct of good size but the cystic duct had enlarged and its wall had become subacutely inflamed. In one case the attacks of pain were so severe that the patient had become addicted to morphine. After removal of the stone from the cystic duct and removal of the dilated inflamed stump of the cystic duct, it was possible to rid the patient of his pain and of his morphinism within two weeks.

CHOLANGITIS AND PANCREATITIS

It will be recalled that I said previously that stones were found in 149 of 254 cases in which the common bile duct had been explored because it was enlarged, whereas, in the remaining 105 cases stones were not found in the common or hepatic bile duct. Evidences of cholangitis with associated pancreatitis in these 105 cases were turbidity of the bile, the finding of gram-negative bacteria of the coli-aerogenes group, with or without staphylococci or streptococci, and thickening of the head of the pancreas as determined by palpation. Further confirmation of this diagnosis was obtained in the postoperative choledochograms, which in some cases revealed persisting stasis in the biliary tract, apparently due to edema of the pancreas, evidenced by demonstrable narrowing of the pancreatic portion of the common bile duct.

The development of cholangitis and pancreatitis, in my opinion, was secondary to cholecystitis. Failure to recognize associated inflammatory lesions of the liver and of the pancreas and failure to drain the common bile duct until the biliary stasis subsides are the causes, in some cases, of symptoms which persist after cholecystectomy. In many such cases in which a secondary operation has been performed on the common bile duct after cholecystectomy and stones have not been found, infected bile and thickening of the head of the pancreas have been demonstrable. Removal of the inflamed gallbladder, exclusion of the presence of stones in the common bile duct by exploration of the duct with scoops and the making of choledochograms and drainage of the common bile duct with a T tube for a period which is sufficient to allow cholangitis and pancreatitis to subside have relieved the symptoms and cured the patient.

STRICTURE OF THE COMMON AND HEPATIC BILE DUCTS

Stricture of the common bile duct usually can be predicated in cases in which a prolonged period of drainage of bile has occurred after a previous operation on the biliary tract. In many of these cases such biliary fistulas heal and evidences of obstruction of the common bile duct do not manifest themselves for months and sometimes years after the operation. I have operated on several patients for whom an interval of from two to four years had elapsed between the time of the operation and the time at which the stricture caused sufficient obstruction to the passage of bile to produce symptoms.

Lewis, Friedell and I[12,13] recently made follow-up studies of ninety-eight patients on whom I had operated for stricture of the common bile duct from 1924 to 1940. This number included eighteen patents who had had complete stricture of the extrahepatic ducts. Ten patients died in the hospital subsequent to operation; this resulted in a mortality rate of approximately 10 per cent. In four cases (this was before the introduction of vitamin K) the immediate cause of death was postoperative hemorrhage. A study made in 1940 revealed that of the ninety-eight patients, fifty-two (53 per cent) were living and well.

CARCINOMA OF THE BILE DUCTS AND THE HEAD OF THE PANCREAS

Carcinoma of the bile ducts usually occurs at the junction of the cystic and the common ducts or at the bifurcation of the hepatic ducts. In the early stages the tumor usually is small and somewhat circumscribed and it is difficult to distinguish the condition from edema of the duct secondary to stone without cutting through the tissues concerned. Such exploration offers the surgeon the opportunity to take a specimen for biopsy, results of which will confirm the diagnosis. When, however, the ductal tumor is at the ampulla, it may be so small that its presence is not recognized by palpation. If this is the case, and if the gallbladder is diseased and if stones are present, the biliary obstruction may seem to be the result of one of the benign lesions previously described; for instance, stone of the common bile duct or associated cholangitis or pancreatitis. Remaining obstruction of the common bile duct, however, manifests itself clinically by persistence of a biliary fistula after the drainage tube has been removed from the common duct. The presence of obstruction would have been revealed, in such a case, had a choledochogram been made before removal of the T tube for the choledochogram would have given evidence of the obstruction persisting at the lower end of the common bile duct.

Stone in the gallbladder and in the common bile duct is not an infrequent accompaniment of malignant tumor of the ducts and of the ampulla. I have never seen stones in the gallbladder associated with carcinoma in the head of the pancreas unless the carcinoma in the head of the pancreas was caused by extension of a carcinoma originating in the pancreatic portion of the common bile duct.

In the last few years interest has been stimulated in the radical removal of the head of the pancreas and the adjacent portion of duodenum for the treatment of carcinoma of the ampulla of Vater and of the head of the pancreas. To Whipple and Parsons[14] and their associates and to Brunschwig[15] credit should be given for the development of methods which permit radical removal of these portions although the risk of the procedures is high. The results of operation, particularly in cases in which the operation has been performed for carcinoma of the papilla of Vater, have been rather good and beyond expectations. I believe this type of carcinoma has the most satisfactory location for use of the method. Although similar methods have been used in the extirpation of carcinoma of the head of the pancreas, the prolongation of life beyond that usually obtained in cases in which the more conservative operation of cholecystenterostomy relieving the jaundice has been performed has not been conclusive, for, in several of the cases, either local or peritoneal carcinomatous metastasis has terminated the life of the patient within a relatively short time. Furthermore, the fact has to be considered that approximately 15 to 20 per cent of jaundice-producing tumors in the head of the pancreas have been found to be inflammatory.

ABNORMAL FUNCTION OF THE SPHINCTER OF ODDI

That an abnormally functioning sphincter of Oddi, with or without associated spasm of the first portion of the duodenum, will produce biliary colic as a result of increased intrabiliary pressure was demonstrated clinically and experimentally by Butsch and McGowan[16,17] while they were fellows in the Mayo Foundation for Medical Education and Research. These investigators also found that reduction of intrabiliary pressure, with relief of pain, could be obtained temporarily by the administration of glyceryl trinitrate (nitroglycerin) or by the inhalation of amyl nitrite. Results of the aforementioned investigation have great clinical value for these antispasmodic substances have relieved patients who were having attacks of pain subsequent to an operation on the biliary tract, whereas, contrary to expectation, morphine administered in average doses, instead of relieving the pain, increased it as a result of increasing the intraductal pressure.

When a patient who has postoperative biliary colic obtains relief from his pain by the administration of glyceryl trinitrate and amyl nitrite, the clinical impression is likely to become fixed that the cause of the pain is primarily spasm of the sphincter of Oddi or of the duodenum. This impression may be erroneous for the spasm may be secondary to the presence of stone in the common bile duct. This I have found to be the case in several patients on whom I have operated. I should like to emphasize, therefore, the fact that the only way to exclude the possibility of that most frequent cause of biliary colic subsequent to cholecystectomy, namely, stone of the common bile duct, is exploration of the interior of the duct. If stones are not found in the common bile duct, it is advisable to dilate the sphincter of Oddi. This, as has been said, not only will allow but may assist overlooked small stones within the intrahepatic ducts to pass more readily into the duodenum. To dilate the sphincter of Oddi the graduated, round-ended scoops used to explore the common duct for stones are used, for, not only do they serve to engage smaller stones in their hollow, but their rounded, bulbous ends also serve as excellent dilators of the sphincter. This method has been used routinely at the Mayo Clinic for many years in every case in which the common bile duct is opened and explored. If the scoop does not pass into the duodenum, it can be assumed that the obstruction at the lower end of the common bile duct has not been completely removed and this, in our experience, has led to removal of impacted stones in the ampulla which might otherwise have been overlooked.

SUMMARY

Frequently the degree of pathologic change in the gallbladder is at variance with the severity of the patient's symptoms and, hence, the exact nature of the degree of pathologic change in the gallbladder cannot always be determined preoperatively. Although the cholecystogram is accurate in its positive disclosure of disease and stones, the report that a gallbladder is functioning normally does not always exclude the possibility that stones nonopaque to roentgen rays may be situated within the interior. Patients with a history of repeated biliary colic should be suspected of having disease of the biliary tract regardless of a cholecystogram which does not disclose it.

The condition of innumerable patients who have cholecystitis and symptoms resulting therefrom has been diagnosed as "angina pectoris." Pain in the precordial area has been produced experimentally by increasing the pressure within the intraductal system of the biliary tract.

The presence of stones in the common bile duct frequently is overlooked at operation and they are not suspected postoperatively, even though biliary colic continues, because of the absence of jaundice. Ten per cent of a group of patients suffering from recurring biliary colic and jaundice were found to have noncalcareous benign obstruction of the biliary tract.

Stricture of the common and hepatic bile ducts usually occurs after operation on the extrahepatic biliary ducts. It is characterized by a biliary fistula and a clinical picture not unlike that of stone

in the common bile duct, except that the persistence of jaundice seems to be greater.

Carcinoma of the bile ducts is rare and seldom lends itself to excision. In recent years resection of the head of the pancreas and the ampulla of Vater with the attached portion of duodenum has been performed successfully in a few cases.

The Mayo Clinic.

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TREATING COMPLICATION OF BRUCELLOSIS

Spondylitis (inflammation of a vertebra) is probably the most common complicating disorder of the bones and joints referable to undulant fever, also known as brucellosis, George S. Phalen, M.D.; Louis E. Prickman, M.D., and Frank H. Krusen, M.D., Rochester, Minn., point out in *The Journal of the American Medical Association* for March 14 in reporting that physically induced fever was of very definite value in the management of 3 cases. They say that so far as they know, no patient suffering from this condition had been so treated previous to their report. The three physicians explain, however, that "it is recognized that, even if no special treatment is employed, the prognosis (outlook) as to ultimate healing in brucellosis spondylitis is good. . . ."

They advise that "patients who are farmers, veterinarians, dairymen, butchers, packing house employees and also those who give a history of ingestion of raw milk and present the chief complaint of backache should be suspected of having brucellosis spondylitis if other clinical factors supporting such a suspicion are also present."

THE ROLE OF THE PSYCHIATRIST IN THE ARMY INDUCTION PROGRAM

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ST. LOUIS

The psychiatric examination at an induction station has far reaching effects for the army, for the examinee, for the examinee's family and the community from whence he comes. The importance of this examination is well recognized. It is difficult to make extensive statistical analyses because of the great number of aspects that must be considered and the lack of available data, but some general observations can be made.

At the Induction Station at Jefferson Barracks, for the last several months at least, straight psychiatric rejections have led the list by over twice the figure of the next cause of rejection. This does not include educational, administrative and neurologic rejections, to which the psychiatrist contributes, nor any of the men who have had psychiatric disabilities in addition to disqualifying physical ones. It would seem that something had been learned from the first World War when psychiatric rejections were fourth on the list. Some rather shop-worn figures are an estimated cost of $35,000 for every neuropsychiatric casualty of the last war amounting to about one billion dollars to date; two out of every five veterans are receiving pensions for such conditions; 60 per cent of the patients hospitalized in Veterans Administration Facilities have been considered neuropsychiatric casualties.

Theoretically, the psychiatric examination is designed to select men with sufficiently well integrated personalities to make good soldiers. While there has been much written about the positive aspects of this type of personnel work, in actual reality it is still a weeding out of the unfit. The average psychiatrist is not too well qualified to know just what the army does want and can use; old top sergeants would probably be better at this. There are some indications as to what the army does not want in the extensive instructions on standards of examination in Mobilization Regulations 1-9. The army, according to circular letter No. 19 from the Surgeon General's Office, is explicit in stating that it is not a rehabilitation project nor a sanatorium; and, if the individual has not made a comfortable, efficient adjustment prior to entry, the chances are that he will make a much worse adjustment in the army. This has been borne out by the tremendous problems that these individuals are now creating for the army medical service.

The responsibility of the psychiatrist is an exceedingly grave one, and he frequently is faced with the need for making decisions on the basis of clinical impressions that cannot be substantiated by the available data. Many misconceptions of the

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psychiatrist's basis for rejection have arisen on that score. I have heard of several mothers who wrote to Washington complaining that their sons were rejected only because they answered a question about going out with girls in the negative, when that was the way the mother had brought them up. It might be stated that the psychiatrist never makes a decision on the basis of isolated behavioral items but rather on the attitudes and trends which form the background for these.

The psychiatrists are not judges in the sense of "condemning" an individual because of something he has said or done. That function is left to properly constituted legal bodies. The psychiatrist's function is to try to predict behavior through an evaluation of the personality and its way of adjusting as revealed by behavioral trends and attitudes. This is the direction and purpose of the training and experience of a psychiatrist. In some instances there will be differences of opinion about the limits of adjustment and capacities, but this is inherent in this type of procedure as in many others and by no means indicates that the procedure does not follow scientific principles.

The psychiatrist has, on the average, about five minutes for each candidate without holding up the line. He can defer those about whom he is doubtful and have them return for further examination at the end of the day. He may see as many as from seventy-five to one hundred candidates a day, and the factor of fatigue in a situation that requires a high degree of concentration must be taken into consideration.

In addition to the limitations of time, there are the handicaps of having few measuring sticks with which to judge performance. There is available a minimum literacy test and a simplified intelligence test but little in the way of social data or the more complicated personality inventory tests that would help in estimating other capacities or deficiencies.

In spite of these limitations, it is not too difficult for the trained observer to rule out the grossly unfit such as the mentally deficient, the psychotic, the illiterate and those individuals with gross central nervous system disorders. However, the borderline cases are those that call for the greatest degree of technical skill and experience on the part of the examiner. Among these would be included the psychopathic, some of the epileptic, the emotionally immature, the psychoneurotic, the psychosomatic, the prepsychotic and the so-called malingering individuals.

Perhaps this last group might be discussed as it illustrates a common attitude toward individuals with personality disorders that are not associated with observable structural change. It might be stated that, on the basis of hundreds of interviews with drafted men, the well integrated person has a fairly well defined attitude toward induction into the armed services. This attitude might be expressed in many ways. However, these would add up to the individual not having a great desire to leave his home situation but a willingness to accept his share of responsibility if the government so desires it. He does not especially want to kill anyone, but is willing to do whatever is called for as part of a big job that must be done before he can return to his former satisfactory way of living.

The poorly integrated person might say this because it is the culturally acceptable attitude, but he will show many behavioral trends that would indicate that army service would have a much different meaning for him. The purpose behind these trends is a protective one and, knowing what one does about the determination of human behavior, one should recognize a deeper motivation behind these attitudes than what appears on the surface. However, one's own personal feelings toward those who would appear to be dodging their responsibilities is such that one frequently has a blind spot for this deeper motivation and tends to want to punish the individual for not taking his responsibilities the way others do. This feeling is much stronger toward those who seem to be more aware of the purpose of their immediate behavior. They are labeled "malingerers" or "liars" and are pushed into the army but, so far as I know, no one has ever gone to the trouble of following them up to find out what kind of an adjustment they make. The detection of "malingerers" has been a source of many papers during the last century or more. The present "standards of examination" also go into this in quite some detail but recognize that some malingering may be associated with psychopathic personality trends.

Until follow-up studies have been made, many psychiatrists who are interested in psychopathology will doubt if there is such an entity as a "true malingerer," meaning by this an individual who has nothing else wrong with him other than a tendency to lie in order to get out of an unpleasant situation. If these individuals are investigated without bias, they frequently show many other attitudes that would tend toward a poor adjustment in the army. For example, one man previously had been rejected on the basis of chronic alcoholism. He said that this was before Pearl Harbor and that he did not see any reason for going into the army at that time and, hearing that men were turned down for drinking, he went on a spree just before his examination. He was not a chronic alcoholic, although he indicated that he was, and on that basis could be classified as a malingerer. During the second examination, he expressed a strong desire to get into the army to help his country. But behind this lay many difficulties that he was having in his home and community. On the basis of his work, school and social records, it was found that this individual had never made an adequate adjustment and he was rejected again, but this time as a psychopathic personality.

Perhaps one of the greatest handicaps is the difficulty of seeing the total situation as it applies to the army, the individual and the community and

there is a tendency to take a one-sided, rather personal point of view. In an attempt to get a picture of the total situation, the Department of Neuropsychiatry at Washington University conducted a survey of neuropsychiatric casualities returning from the armed forces to the St. Louis area.

For the period between July 1, 1941, and May 15, 1942, (ten and one half months) social workers were able to collect a total of eighty-three cases through the Red Cross, other agencies and the mental hospitals. How many more there may have been could not be determined. Of these, sixty-two were from the army, nineteen from the navy and two from the marine corps. It was impossible to get sufficient information for a thorough analysis but some general observations could be made.

Many of these men obviously never should have been admitted. Some of them were sent in by parents or local boards in the hope of "making a man" out of them. Nine cases had severe family problems associated with their induction which required considerable social and psychiatric assistance, and in one case the mother committed suicide. Many of the returned men have not been able to get employment, presumably because of their army discharge, are seeking compensation and have become community problems.

It was difficult to get adequate diagnostic formulations except for the few with whom direct contact could be established, but it was obvious that a relatively small number had become psychotic and required mental hospitalization. By far the greatest number, as could be expected, fell into the borderline group mentioned previously. Some of these had been considered as "gold bricks" at camp, but after investigation in the station hospitals were discharged as psychoneurotic or psychopathic. The lack of objectivity and understanding of behavior was well expressed in one case in which social data were asked for. This very revealing information was not used at a court martial because it "would prejudice the judges" and the boy appeared to be such a nice fellow that they wanted to give him another chance!

The question of what should be done with individuals who have personality incapacities is not one for the psychiatrist alone to decide. His function at present is to find the incapacities before they lead to problems of adjustment. However, an individual should be expected only to be able to function according to his capacities, emotional and intellectual as well as physical. With the growing needs of an expanding army, many of the incapacitated may be capable of limited activities. This might help to solve some of the problems of maintaining morale both in the army and in the community.

How can the efficiency of the psychiatric examination of inductees be increased? The army, mental hygiene societies and psychiatric associations have been wrestling with this problem for some time and have made considerable progress. Many plans have been tried for weeding out the incapacitated before they appear for examination or for obtaining social data that will be of assistance to the psychiatrist in making his decision. Col. Gist of the State Headquarters of the Selective Service System has had many conferences with the Missouri Mental Hygiene Association and tentative plans are being considered for this state. He already has contacted several good sources of information but there is much more to be done.

This type of screening approach requires a tremendous amount of effort, most of which will have to be voluntary. The names of the men coming up for induction are cleared through social agencies, mental hospitals, clinics, the police departments and other sources of social data. This is a tremendous task, considering the number of men coming up for induction, but has been fruitful in those localities in which it has been in operation.

The members of the local draft boards sometimes know the candidate well enough to supply helpful personal data. Local physicians often have sent in reports of their contact with the candidate. The other medical examiners at the station are frequently of great help by picking up and noting abnormal attitudes during the course of their examination. It is recognized that the individual might have a minor physical defect which ordinarily would not be a cause for deferment but he may also have markedly psychoneurotic attitudes directed toward this.

It would be helpful to the psychiatrist if it were possible to hold many of the borderline cases for several days of observation. During this time intensive social service investigations could be carried out and personality tests administered. Closer cooperation with the reception centers in the placing of some of these individuals may help to avert future casualties or the returning of the individual to his community with a psychiatric label pinned on him. Follow-up studies, perhaps in cooperation with station, base hospitals and social agencies would be of inestimable value to the examiners. One of the psychiatric examiners formerly stationed at the induction station frequently expressed concern about being too hard on the men coming up for examination. Two weeks following his transfer to a camp hospital he returned to state that he then was concerned about the examiners being too lenient. All could profit by an education of this kind.

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The case of a policeman with psittacosis (parrot fever) whose only known contact with birds was with common pigeons, is reported in *The Journal of the American Medical Association* for April 4 by Henry Alicandri, M.D., Brooklyn. He points out that the disease, which is highly communicable, has been transmitted to man by parrots, parakeets, love birds and rarer birds of the parrot family and that this isolated case warrants closer investigation of pigeons as a possible source of infection.

CASE REPORTS OF THE BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

ROBERT A. MOORE, M.D., Editor
ST. LOUIS

CASE 1

PRESENTATION OF CASE

The patient was a 45 year old white, unmarried saleswoman admitted to Barnes Hospital on December 19, 1940. She died on December 30, 1940.

Chief Complaint.—Pain in right chest, fever and cough of three weeks' duration.

Family History—Her mother, aged 74, had been under treatment for tuberculosis for the last two years.

Past History.—She had had an abscess in left ear at age of 12 which drained promptly and healed. There was no history of previous cough, chest pain, night sweats, hemoptysis or weight loss. The patient lived in St. Louis County.

Present Illness.—Three weeks before admission the patient had had a sudden chill while working as a saleswoman in a music store. She went home immediately and went to bed. Her temperature rose rapidly and she began to complain of pain in the right chest. She took two Bromo-Quinine tablets and shortly thereafter noticed tinnitus. She had several more chills during the night but went to work again on the following day. She continued to go to work for the next ten days but on each day she was forced to leave work early because of the severe pain in her right chest and fatigue. The pain was made worse by deep breathing and cough. She was admitted to Barnes Hospital because of these symptoms. No mention was made of blood streaked sputum during her illness.

Physical Examination.—Temperature 39.9 C., pulse 100, respiration 24, blood pressure 106/70. The patient was a moderately well developed but poorly nourished white girl about 45 years of age who appeared to be acutely ill. Her skin was hot and dry but there was no rash present on any part of the body. Moderate deafness was noted in both ears and there was a bloody purulent discharge from the nose. Her teeth were carious and there was pyorrhea of the gums. The tongue was dry and coated. The percussion note over the right lower chest anteriorly and posteriorly was described as dull. A friction rub was heard in this area by one observer and there were a few medium rales. Breath sounds over the area of dullness were diminished as was the tactile fremitus. No abnormalities were noted in the examination of the heart. There was tenderness and muscle spasm in the right upper quadrant of the abdomen. The spleen and the liver were not palpable. A small cystic mass about 2 cm. in diameter was noted close to the rectum. The mass was fluctuant. The pelvic examination revealed moderate erosion of the cervix. The neurologic examination revealed no abnormalities.

Laboratory Findings.—Urine was cloudy; specific gravity 1.030; albumin 1 plus; sugar, negative; alkaline in reaction, microscopic numerous white blood cells. Blood examination showed red blood cells 4,500,000; Hb. 80 per cent; white blood cells 8,800; differential count was 1 basophil, 14 stabs, 66 segmented forms, 18 lymphocytes, 1 monocyte. Blood Kahn test was negative. Routine blood culture was sterile. Sputum examination was negative for acid-fast organisms. Smear of the sputum showed numerous encapsulated diplococci. Stool cultures were negative for the typhoid dysentery group. No parasites or ova were seen.

Fluoroscopic and Roentgen Ray Examination.—The left hilar shadow was somewhat increased and there was a small amount of rather coarse soft parenchymatous mottling throughout both lungs. There appeared to be thickening of the interlobar fissure on the right side and there was evidence of fluid at the right base.

Course in Hospital.—Upon admission to the ward a thoracentesis was performed and 400 cc. of slightly cloudy straw-colored fluid was obtained from the right chest. The cell count and specific gravity were not determined but numerous diplococci were described in the smear from the fluid. Cultures of the fluid were negative and a guinea pig was inoculated because of the suspicion that the patient might have pulmonary tuberculosis. She remained acutely ill in spite of sulfonamide therapy. The fever and tachycardia persisted and at times the patient's respirations exceeded 40 per minute. On the fourth day the white blood count had risen to 14,200 and serum drawn for agglutination tests showed a titer of 1:640 against B. tularensis. Further history was then obtained from the patient that she had repeatedly skinned rabbits during the previous month and that her sister was ill at home with a sore hand and an infection said to be rabbit fever. Because of this history and the positive agglutination test the patient was given antitularemic horse serum. A second thoracentesis was performed and 400 cc. of slightly cloudy fluid was again removed. The fluid was cultured for B. tularensis but no growth was obtained. No organisms were seen in the centrifuged specimen of fluid sent to the laboratory. A sputum culture was also negative for B. tularensis. On the seventh hospital day the guinea pig which had been inoculated with pleural fluid on the first day died with lesions said to have been typical of tularemia. Cultures from these lesions, however, were sterile. The patient's condition became rapidly worse in spite of continued serum therapy, chemotherapy and blood transfusions. On the eighth hospital day her lungs became filled with coarse sticky rales. A thoracentesis was attempted on the eleventh day

to relieve the dyspnea but only 100 cc. of fluid could be obtained, and on the twelfth hospital day the patient died.

DIFFERENTIAL DIAGNOSIS

Dr. W. Barry Wood, Jr.: Let me first recapitulate the essential points in this case. A 45 year old woman with a family history of tuberculosis had, for three weeks, pain in the chest, fever and cough. For two weeks she was not sufficiently ill to remain at home in bed. There was a sudden chill at the onset. There were signs of pneumonic consolidation and fluid over the right lower lobe and diplococci were seen on smears from the fluid removed from the right pleural cavity although they could not be cultured. There was no significant leukocytosis. The serum agglutinated B. tularensis in a dilution of 1:640. The spleen and liver were not palpable. There were signs of a perirectal abscess.

There are certain possibilities that must be considered: pneumococcal pneumonia with empyema; pulmonary tuberculosis with effusion; tularemia; a fungal infection; atypical (virus?) pneumonia; and psittacosis.

In considering the possibility of tuberculosis, there was a history of tuberculosis in the family. The illness in this individual was of short duration —three weeks. Tubercle bacilli could not be found in the sputum and the signs were those of consolidation of the lower lobes. This does not appear to be a case of tuberculosis.

The history is typical of a pneumococcal pneumonia-onset with shaking chills and pain in the chest. The fact that the patient continued to work for ten days is against the diagnosis of pneumococcal pneumonia because patients with this disease are usually too ill to leave home. The character of the fluid taken from the right pleural cavity is suggestive of pneumococcal pneumonia, and the fact that an intern saw diplococci in the smear is of considerable significance. Opposed to the diagnosis of pneumococcal pneumonia is the slow pulse with high fever and the absence of bloody sputum. The lack of response to chemotherapy with sulfonamides is of less significance since most patients with a complicating empyema fail to respond to these drugs. There are thus more points against the diagnosis of pneumococcal pneumonia than there are in favor of it and one must conclude that this patient probably did not have a pneumococcal infection.

The total course of the disease of five weeks is against the diagnosis of a fungal infection. Psittacosis is a possibility but seems unlikely in this case. Atypical pneumonia may be ruled out with reasonable certainty because of the history of shaking chills, the complicating pleural effusion and the unfavorable outcome.

Finally, there is the diagnosis of tularemia. The patient first became ill in December and tularemia is most common during the months of December, January and February—that is, during the rabbit season. The history states that the patient skinned rabbits although she used rubber gloves. Also her sister was ill at home with an ulcerative lesion on her hand that had been diagnosed "rabbit fever." The ambulatory course for ten days is consistent with a diagnosis of tularemia. Pneumonia and pleurisy with effusion are common findings. The agglutination test supports the diagnosis but does not prove it since the patient may have had tularemia many years ago. It would have been most desirable to have had two determinations of the agglutination titer, one at the beginning of the disease and one toward the end. If the titer increases significantly during the course of the illness the diagnosis becomes almost certain. The result of the guinea pig inoculation with pleural fluid is also strongly in favor of tularemia. The animal died in seven days and showed at autopsy small foci of necrosis in the liver and spleen. The failure of the organisms to grow from the guinea pig lesions cannot be explained easily. With cystine blood agar B. tularensis ordinarily can be recovered without difficulty from the tissues of infected animals. Finally, the failure of the patient to respond to chemotherapy is consistent with a diagnosis of tularemia.

There is inadequate information to postulate the portal of entry. In most cases there is a lesion on the fingers or of the eye. It is possible that this patient acquired the disease by inhalation of fur from diseased rabbits.

Dr. Margaret Smith: Were smears made from the lesions in the guinea pig and stained for bacteria?

Dr. Wood: It is my understanding that they were not. The finding of a small gram-negative organism in smears would have been most helpful.

Dr. Smith: Is there any evidence that the sulfonamide drugs are detrimental in tularemia, such as in a few other conditions?

Dr. Wood: Not that I know of.

CLINICAL DIAGNOSIS

The clinical diagnosis was tularemia.

DR. WOOD'S DIAGNOSIS

Dr. Wood's diagnosis was tularemia with pneumonia and pleurisy.

ANATOMIC DIAGNOSIS

The anatomic diagnosis was tularemia, bronchopneumonia with foci of necrosis of the lower lobes of the lungs, fibrinopurulent pleurisy (right), focal necrosis of the spleen, liver and lymph nodes.

PATHOLOGIC DISCUSSION

Dr. Moore: The pathologic findings in this case are typical of tularemia. In the lung there was a necrotizing type of pneumonia with large areas in which the alveolar walls were necrotic and the architecture of the lung completely destroyed. The predominating infiltrative cells were mononuclear

cells and the lymphocytes. There were a few polymorphonuclear leukocytes. In all of the lesions a few giant cells were encountered. In the liver there was in addition to foci of necrosis, hyperplasia of the Kupffer cells.

There is a great danger in the handling of tissues from guinea pigs inoculated with tularemia and for some years it has not been a practice to attempt to isolate the organism. On two occasions Dr. Margaret Smith, however, has isolated the organism because of the special importance of the cases.

The portal of entry is obscure. It is possible that the inhalation of contaminated hair was the source of infection. This cannot be supported entirely on the basis of the presence of a tularemic pneumonia since 75 per cent of all fatal cases of tularemia regardless of the portal of entry develop pneumonia. One case was studied in which the organisms presumably entered through the intestine. In another case in a child there was inferential evidence of a primary lesion in the pharynx.

CASE 2

PRESENTATION OF CASE

The patient was a 40 year old white, married, electrician from Illinois, admitted to the Barnes Hospital on June 30, 1942, and died on July 3, 1942.

Chief Complaint.—Repeated attacks of "asthma" for six months.

Family History.—Not recorded.

Past History.—General health had been excellent. The patient had had malaria twice while on military service in the Philippine Islands in 1921. He had had three attacks of pneumonia between 1934 and 1940. On all three occasions he was "weak for months afterward."

Present Illness.—About one year before admission to the hospital the patient noticed slight difficulty in breathing following severe exertion. At that time he was working in Fairbanks, Alaska, as an electrician. Six months before entering the hospital he experienced an attack of severe dyspnea which was preceded by a feeling of heaviness in the right chest for approximately one half hour. He stated that he had had great difficulty with expiration although inspiration was apparently normal. He was able to hear rhonchi in his own chest during the attack. There was no particular pain but the dyspnea was accompanied by cough which became productive of tenacious mucoid sputum. The sputum increased in amount immediately after the attack subsided. The patient stated that he was given adrenalin during the first attack with immediate relief but that this treatment had no effect upon subsequent attacks.

For the next six months until the time of admission to the hospital these episodes became more numerous and severe. Upon two occasions the patient coughed up dark red clotted blood. In neither instance did the amount exceed one half cupful. Because of these symptoms he had to stop work and return from Alaska, stopping off at various clinics in the West and Middle West for treatment. During that time he lost approximately 20 pounds in weight and became progressively weaker. He had no chest pain, orthopnea or ankle edema and had never been aware of fever.

Physical Examination.—Temperature 37.4 C., pulse 84, respiration 20, blood pressure 115 75. The patient was a well developed and moderately well nourished white man who did not appear to be acutely ill. He was having obvious difficulty in breathing. Inspiration was full and slightly labored and expiration was long and labored, the patient having to exert considerable effort in order to empty his lungs. Examination of the head revealed no abnormalities. The neck veins were not engorged and there was no noticeable enlargement of the lymph nodes. The right side of the chest appeared to remain expanded longer than the left during the respiratory cycle. The percussion note was hyperresonant throughout both lung fields. Numerous loud coarse rhonchi and rales were heard, particularly over the right lung; their exact localization was not described. One observer described stridor over the trachea which became more marked when the patient lay on his left side. The heart could not be outlined on percussion and the sounds were heard only with difficulty. The rhythm was regular and no murmurs were heard. The peripheral pulse was normal except for slight tachycardia. The abdomen was soft; no masses were felt. The rest of the physical examination gave normal findings. There was no mention made of clubbing of the fingers.

Laboratory Findings.—Urine was normal except for occasional white blood cells in centrifuged specimen. Blood showed red blood cells 5,650,000; Hb. 16.2 gm.; white blood cells 6,400; differential count was 1 stab, 63 segmented neutrophils, 22 lymphocytes, 11 monocytes and 3 eosinophils. Blood Kahn test was negative. Sputum examination revealed no acid-fast bacilli. Skin tests with a large series of allergens were all negative.

Roentgen Rays of Chest.—(1) Postero-anterior view of chest: "Cardiac silhouette and aorta are within normal limits. The lung markings are rather coarse, but the parenchyma is clear. X-ray diagnosis: Enlargement of pulmonary vessels. (2) Laminagrams of chest (antero-posterior and right lateral): The tracheo-bronchial tree is well shown. There is a soft tissue mass on the right, rather circular in outline, the greatest dimension being about 3.5 cm. It encroaches upon the trachea just above the carina. There is a projection downward from this tumefaction which joins a similar area below and lateral to the innermost lateral portion of the right hilus. The left hilus is notably enlarged. The right lateral laminagrams confirm the findings in the antero-posterior view as to the position and physical characteristics of the tumor mass seen in the antero-posterior view. The tumor mass is in the posterior mediastinum. X-ray diagnosis: Posterior mediastinal tumor. (?) Hodgkin's disease."

Otolaryngologic Consultation.—(Bronchoscopy) "Structure and formation of larynx normal. At about the fourth tracheal ring I believe I can see a smooth round mass. This is indefinite."

Course in Hospital.—The patient continued to have respiratory difficulty. Four days after admission he suffered a severe attack and was treated with adrenalin and morphine sulfate without apparent effect. He was placed in an oxygen tent but the dyspnea became progressively worse and in spite of aminophyllin therapy, artificial respiration and, finally, intracardiac coramine, he died 2 hours and 45 minutes after the onset of the attack. During the attack he complained to the nurse that he felt as though something was choking him. During the last hour the cyanosis was extreme.

DIFFERENTIAL DIAGNOSIS

Dr. W. Barry Wood, Jr.: I should like to make one correction in the history—the examination recorded as bronchoscopic was in reality a laryngoscopic examination.

There are certain important points in the patient's history and physical examination which warrant brief discussion. First, he had had three attacks of pneumonia between 1934 and 1940. This is not an uncommon history. Patients who have had one attack of pneumonia frequently develop a second attack, suggesting that they are possibly more susceptible to pneumococcic infections than the average individual. Patients with chronic infections of the bronchi or lungs not only have repeated attacks of pneumonia but usually suffer from lesions involving the same lobe of the lungs in each attack. Unfortunately, in the present case it is not known whether the same lobe was involved in each pneumonic episode. This point in the history might be helpful in the diagnosis if the data were available.

Second, the history of the first attack of severe dyspnea is of interest. The patient had a feeling of heaviness in the chest and coughed up a large amount of thick, tenacious sputum. This evidence suggests that there may be a cavity within the lung communicating with the bronchus. On the other hand, it is conceivable that the sputum came from an obstructed bronchus and was coughed up as soon as the obstruction was released.

A third important feature in the history is that of hemoptysis on two occasions. Coughing up of blood would indicate that the patient was suffering from a lesion which was eroding into the bronchus. Tuberculosis, bronchiectasis and bronchogenic carcinoma are the commonest causes of such lesions.

A further significant point is the history of loss of 20 pounds in weight in less than a year. Weight loss is in favor of some form of malignant tumor.

Fifth, the patient had no fever at any time. This fact may be taken as evidence against there being an infectious process in the bronchi or lungs.

In the physical examination the detection of a respiratory lag on the right side was a good clinical observation and would lead one to believe that the lesion in the lung was obstructing the right main bronchus. Further, when the patient lay on his left side there was respiratory stridor indicating that the mass pushed down upon the right side of the trachea or upon the right main bronchus.

The laboratory findings are of little help in the diagnosis. There is a slight polycythemia probably caused by chronic anoxia.

The most important findings in this case were discovered on roentgen ray examination. In interpreting the roentgen ray films one should like, if possible, to secure definite information regarding the following points:

1. Is the lesion in the chest unilateral or bilateral?
2. Is the process bronchogenic or does it involve principally the mediastinum?
3. What lesion, if any, is present in the lungs?

The routine chest plate does not satisfactorily answer any of these questions. The laminagraph taken in the antero-posterior position shows, however, definite masses in both hilar regions, the mass on the right apparently invading the trachea just above the carina. No definite lesion is discernible in the parenchyma of the lung. The laminagraph taken in the lateral position shows two masses in the right hilar region connected by a narrow pedicle. Dr. Graham looked at these laminagraphs yesterday and said that he had never before seen this type of shadow in the hilar region. He suggested that this might be a so-called mixed tumor of the bronchus.

One is tempted in diagnosing a case of this sort to go further than the clinical data warrant. The history and physical findings indicate that the patient has a tumor involving the mediastinal structures and invading the right main bronchus. The tumor is presumably malignant and the patient died from obstruction of the respiratory passages. The clinical data give very little information as to the specific type of tumor from which the patient suffered.

In a conference of this sort, however, it is desirable at least to discuss the differential diagnosis somewhat further. There are numerous tumors which may arise in this part of the chest. Tumors of the thyroid gland, particularly of substernal thyroid tissue, may be malignant and invade the mediastinum. However, tumors of this sort seldom extend below the bifurcation of the trachea. Tumors of the thymus gland also may invade this same region. It should be pointed out that they arise in the anterior mediastinum; the tumor in this patient according to the radiologists is in the posterior mediastinum. Tumors arising from nerve tissue also must be considered. Neurofibromata occasionally produce mediastinal masses which grow rather slowly. Tumors derived from the sympathetic elements of the nervous system are usually more malignant. One interesting form of neurogenic tumor which might be mentioned is the hourglass tumor which arises from the nerve roots in

the mediastinum. The pedicle connecting the two tumor masses in the present case might suggest this form of tumor. Chondromas of the bronchi and lungs are rare. Far more common are neoplasms involving the lymph nodes such as Hodgkin's disease and lymphosarcoma. These growths do not often erode the bronchi. Large mediastinal growths also may be due to tuberculosis and Boeck's sarcoid. All of these lymphatic tumors usually form smooth, rounded masses extending out from the mediastinum and do not give the appearance shown by the roentgen ray films of the present case. Tumors of the bronchus, particularly bronchogenic carcinoma, must be considered. In the present case the bilateral lesion would be somewhat against this diagnosis. Other less common tumors of the mediastinum which should be mentioned are teratoma and dermoid cysts. Patients with the latter not infrequently cough up small amounts of hair.

In the present case it is, of course, impossible to identify the exact type of tumor. With the evidence available I would favor some form of cystic tumor containing malignant elements which would probably be classed as a teratoma. I would make this diagnosis purely on the basis of the shadow seen in the lateral laminagraph. I should like to emphasize again, however, that one is not justified in the present case in making such a specific diagnosis. One can say only that this patient died of a malignant tumor involving the mediastinum and invading the right main bronchus.

Has anyone any further suggestions to make as to other possibilities?

STUDENT: Should one not consider sarcoma?

DR. WOOD: Sarcoma is certainly a possibility to be considered. Lymphosarcoma is the most common type invading the mediastinum and lungs. Dr. Hempelmann, what is your diagnosis in this case?

DR. HEMPELMANN: I believe this is a bronchogenic carcinoma despite the fact that it is bilateral. The appearance in the roentgen ray plate could be caused by proliferation of the tumor cells along the lymphatics.

DR. ARROWSMITH: There appears to have been considerable obstruction of the right main bronchus during the last few days of life. Is it possible that the radiant energy used in taking four or five roentgen ray plates could have caused edema of the respiratory mucosa?

DR. HEMPELMANN: I doubt that a sufficient amount of radiant energy was administered to this man to cause any reaction.

CLINICAL DIAGNOSIS

Clinical diagnosis was carcinoma of bronchus.

DR. WOOD'S DIAGNOSIS

Dr. Wood's diagnosis was malignant tumor involving the mediastinal structures and invading the wall of the right main bronchus.

ANATOMIC DIAGNOSIS

The anatomic diagnosis was malignant adenoma of right main bronchus with a solitary metastasis to the liver; sarcoidosis involving the lung, pleura and tracheobronchial lymph nodes.

PATHOLOGIC DISCUSSION

DR. MOORE: The gross findings in this patient were similar to those of bronchogenic carcinoma. There was a large tumor mass infiltrating the wall of the right main bronchus and the lower part of the trachea. The tumor extended into and partially obliterated the lumens of these structures. There were small firm nodules of grayish white tissue in the lung, in the pleura and in the tracheobronchial lymph nodes. In addition there was a single nodule of yellowish gray tissue, 8 millimeters in diameter, in the liver. It was apparently a carcinoma arising in the right main bronchus with metastases of the lung, pleura and liver.

It was quite surprising to find on microscopic examination of the primary tumor that it was a typical adenoma. The individual epithelial cells were arranged in regular acini and in solid chords and acini. It was even more surprising to find that the tumor nodule in the liver was identical in structure with that in the bronchus. So far as I am aware there are only two previously reported cases in which an adenoma of the bronchus has metastasized. In both of these instances, the metastatic growth was a fortuitous finding on microscopic examination of routine sections.

With these two facts established there remained an adequate explanation of the tumor nodules in the lungs, pleura and lymph nodes. On microscopic examination they proved to be typical examples of Boeck's sarcoid.

WARNS THAT CAUTION SHOULD BE USED IN ADMINISTERING SULFAGUANIDINE

"The administration of sulfaguanidine (a member of the sulfanilamide family of drugs) is not an entirely innocuous procedure despite its slow rate of absorption from the intestinal wall into the blood stream," Seymour L. Cole, M.D., Brooklyn, advises in *The Journal of the American Medical Association* for September 19. He warns that "caution should be used in its administration, especially if there are factors present which increase the rate of its absorption or decrease the rate of its excretion."

Dr. Cole reports the case of a woman who suffered severe intoxication manifested by nausea, vomiting, headache, sudden temperature rise, a skin eruption resembling measles, a deficient secretion of the urine, blood in the urine and the presence of the crystals of sulfaguanidine in the urine, following the administration of the drug to combat an ulcerative colitis.

He explains that "owing to its efficacy against the bacteria of the intestinal tract and its slow rate of absorption into the blood stream sulfaguanidine is becoming increasingly widely used as a chemotherapeutic agent for intestinal diseases. The occurrence of severe reactions to sulfaguanidine therapy, however, apparently has not been recorded up to this time. . . ."

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OCTOBER, 1942

EDITORIALS

KANSAS CITY SOUTHWEST CLINICAL SOCIETY ANNUAL FALL CLINICAL CONFERENCE

The Kansas City Southwest Clinical Society will hold its twentieth annual Fall Clinical Conference in the Municipal Auditorium, Kansas City, October 5 to 8.

Speakers who will appear in general assembly addresses are: Dr. Thomas E. Carmody, Chief of Otolaryngology, Child Research Council, University of Colorado Medical School, Denver; Dr. Geza de Takats, Associate Professor of Surgery, University of Illinois College of Medicine, Chicago; Dr. Walter A. Fansler, Clinical Professor of Surgery, University of Minnesota Medical School, Minneapolis; Dr. Richard H. Freyberg, Assistant Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor; Dr. Robert Graham, Professor of Animal Pathology and Hygiene, University of Illinois, Urbana; Dr. N. Sproat Heaney, Rush Professor of Obstetrics and Gynecology, University of Illinois Medical School, Chicago; Dr. R. B. Henline, Attending Urologist, New York Hospital, New York; Dr. Byrl R. Kirklin, Professor of Radiology, University of Minnesota Graduate School, Rochester; Dr. Cobb Pilcher, Associate Professor of Surgery, Vanderbilt University Medical School, Nashville; Dr. Fred W. Rankin, Washington, D. C., President, American Medical Association; Dr. Cornelius P. Rhoads, Director, Memorial Hospital for Cancer and Allied Diseases, New York; Dr. Robert L. Sanders, Associate Professor of Surgery, University of Tennessee College of Medicine, Memphis; Dr. Wesley W. Spink, Associate Professor of Medicine, University of Minnesota Medical School, Minneapolis; Dr. Norman C. Wetzel, Associate Professor of Pediatrics, Western Reserve University School of Medicine, Cleveland; Dr. S. Marx White, Professor of Internal Medicine, University of Minnesota Medical School, Minneapolis; Dr. Philip D. Wilson, Clinical Professor of Orthopedic Surgery, Columbia University College of Physicians and Surgeons, New York.

Refresher courses arranged for the specialist or general practitioner who finds that he now must assume added responsibilities in the care of civilian health will be presented by Kansas City physicians on the following subjects: gastro-enterology, pediatrics, fractures, heart, urology, renal diseases, differential diagnosis and treatment of the acute abdomen, obstetrics, burns and soft tissue wounds, tuberculosis, ear, nose and throat, eye, diabetes, proctology, neurology, communicable diseases, industrial medicine, endocrinology, gynecology and blood banking.

Other features which will complete the four day program are round table luncheons, scientific and technical exhibits, motion pictures, radio broadcasts, entertainment and alumni dinners.

The complete program appears in the September-October issue of the *Kansas City Medical Journal*, a copy of which will be sent upon request to the office of the Kansas City Southwest Clinical Society, 208 Shukert Building, Kansas City.

CURRENT THINKING ON RADIUM THERAPY

The recent meeting of the American Radium Society provided a program that reflected present day attitudes toward radium therapy. Not the least important item of the moment is the protection of radium element in the presence of air raids. Then there is the necessity of protecting the patient undergoing radium treatment when hospital bombings are a possibility or an actuality. These matters have been the concern of the United States Bureau of Standards which has published a booklet with full directions for such things as the erection of bomb-proof safes. All manner of advice is offered so as to interfere as little as possible with the routine use of radium. Now that coast lines and boundary distances fail to protect any inland areas, there is every reason for identical measures in all parts of this country. This booklet can be obtained from the Superintendent of Documents, Washington, D. C., for 10 cents.

With the ambitions to raise radium doses to the threshold of tissue tolerance in order to achieve maximum lethal effects upon cancerous growths there is the necessity of protecting normal tissues within the range of gamma irradiation. One symposium featured radiation osteitis as a penalty or complication from too vigorous postoperative breast irradiation. Slaughter reported five pathologic fractures of the clavicle from the extensive breast service of the Memorial Hospital, New York. Wammock and Arbuckle exhibited rib fractures complicating interstitial radium needle technic for cancer of the breast. Leach reported no untoward effects upon the heart and this is very important from the medical jurisprudence angle because people are so prone to blame irradiation for heart attacks that have no actual connection therewith.

Leach feels that the symptoms of dyspnea and fatigue following extensive high voltage therapy to the breast postoperatively are due to pleural fibrosis and pulmonary fibrosis and not to any radiation effect upon the heart.

These authors, who reported radiation osteitis, seem to agree that bone is quite radiosensitive and because of the high calcium content does absorb a higher unit value of irradiation than do soft structures. Again the blood supply of bone is fixed and there is little chance for the development of collateral circulation. Massive doses are more damaging than fractionated doses. Those bones near the skin such as the ribs, clavicles, mandible and phalanges are particularly vulnerable. Yet there are many reports of femoral neck osteitis; but, the fractures at this site are more likely due to weight-bearing accidents.

Pan-American participation brought out two interesting papers. One showed the comparative high frequency of rhinoscleroma of the upper air passages in Mexico. This is rarely seen in the United States and this very infrequency provides its confusion with cancer of the larynx. Vargas reported seventy-five cases and expressed his preference for moderate doses of irradiation for favorable effects. The second paper by Guzman of Mexico City involved an intricate cellular problem in neoplasia and while it was probably understood by but few, it certainly did serve to indicate that hemispheric research finds contributions from sources hitherto unknown.

It has been evident for many years that radium therapy has been the prime factor in efficient treatment of carcinoma of the uterine cervix. Of course, there is now a majority who favor the addition of fractionated high-voltage roentgen ray therapy to the pelvis including the aortic triangle. There were, however, three papers on the 1942 program that reported success in the radiation attack upon carcinoma of the uterine corpus. The peculiar demands for methods of finding the intra-uterine location of the neoplastic growth and the necessity of providing radium apparatus to provide direct and efficient treatment to the involved area has produced innumerable and different clever devices. It is probably true that these individualized methods will gradually sediment into fewer instruments; but no two cancers can be identical although they may classify and grade and respond in direct ratio to the capacity, ingenuity and basic scientific ability of the chosen radiologist.

NEWS NOTES

Dr. Herbert L. Mantz, Kansas City, was a speaker at the meeting of the Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Trudeau Society at Chicago, September 16 to 18. Dr. Mantz spoke on "Incidence of Tuberculosis Among Civil Defense Personnel."

Dr. Clyde P. Dyer, St. Louis, presided at the meeting of the Mississippi Valley Medical Editors' Association at Quincy, September 30, and presented the "Address of the President."

The addition of several stories to the Medical Depot at St. Louis, which is expected to be completed shortly, will make this building the largest structure in the city. The building, which has been remodeled, was purchased by the War Department about a year ago.

The week of October 25 to 31 has been designated as National Hearing Week by the American Society for the Hard of Hearing. One hundred sixty societies for the hard of hearing in the United States and Canada will participate in programs of education to acquaint the public with the causes of deafness and the need of guarding against them.

The President has issued a proclamation setting aside the week of October 4 to 10 as fire prevention week. All agencies throughout the country are asked to cooperate in attacking and eliminating fire hazards in an effort to reduce loss of life and property from blaze and smoke in every state in the union. The Office of Civilian Defense has been directed to initiate programs emphasizing the importance of attaining these objectives.

DEATHS

Kinsolving, Floyd, M.D., Hornersville, a graduate of the University of Louisville School of Medicine, 1888; honor member of the Dunklin County Medical Society; retired; aged 79; died May 5.

McDaniels, J. Barry, M.D., Springfield, a graduate of Barnes Medical College, 1905; member of the Greene County Medical Society; aged 71; died May 14.

Lissack, Henry Max, M.D., Concordia, a graduate of the Homeopathic Medical College of Missouri, St. Louis, 1903; honor member of the Lafayette County Medical Society; aged 79; died June 20.

Hamel, George F., M.D., Kansas City, a graduate of the Beaumont Hospital Medical School, 1888; honor member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 78; died July 3.

Ehrenfest, Hugo, M.D., St. Louis, a graduate of the Medizinische Fakultat der Universitat, Wien, Austria, 1894; Professor Emeritus of Clinical Obstetrics and Gynecology, Washington University School of Medicine; member of the St. Louis Medical Society; Fellow of the American Medical Association; member of the American Board of Obstetrics and Gynecology; aged 72; died July 24.

Muensch, Otto Lewis, M.D., Washington, a graduate of the Miami Medical College, Cincinnati, 1887; honor member of the Franklin County Medical Society; aged 81; died July 26.

Gross, Julius Henry, M.D., St. Louis, a graduate of Washington University School of Medicine, 1893; member of St. Louis Medical Society; aged 70; died August 17.

ORGANIZATION ACTIVITIES

MINUTES OF THE COUNCIL

The Council of the Missouri State Medical Association met at the Kentwood Arms Hotel, Springfield, at 10:30 a. m., August 30, 1942. Dr. Curtis H. Lohr, St. Louis, Chairman, presided. Those present were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; Curtis H. Lohr, St. Louis; C. E. Fallet, DeSoto; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; Herbert L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston, Councilors; H. L. Kerr, Crane, President; A. W. McAlester, Kansas City, President-Elect; R. L. Thompson, St. Louis, Treasurer; Robert Mueller, St. Louis, Missouri State Chairman, Procurement and Assignment Service; R. M. James, Joplin, Secretary, Community Health League; Paul F. Cole, Springfield, President Greene County Medical Society; E. H. Bartelsmeyer, St. Louis, Executive Secretary.

The minutes of the meeting of the Council of April 29, 1942, were read and approved.

The President, Dr. H. L. Kerr, Crane, addressed the Council briefly.

Dr. R. L. Thompson, St. Louis, was elected Secretary-Editor.

Dr. C. E. Hyndman, St. Louis, was elected Treasurer.

The Chairman was requested to write Dr. Morris B. Simpson, Kansas City, Chairman of the Committee on Public Policy, that it was the unanimous request of the Council that he continue his valuable services as Chairman of the Committee on Public Policy.

The question of dues of members entering military service and the constitutionality of the resolution on dues adopted at the last session of the House of Delegates were discussed. It was decided that the resolution should be termed invalid and that the Association should recognize the component societies' recommendations as to dues of members entering military service until a by-law covering the question could be passed.

It was voted to ask the Committee on Amendments to the Constitution and By-Laws to prepare a by-law covering the dues of members entering military service.

Dr. Robert Mueller discussed the Procurement and Assignment Service and answered questions.

Col. George Foster, O'Reilly Hospital, Springfield, was the guest of the Council for lunch and addressed the Council briefly. He invited members of the Council to visit O'Reilly Hospital at the close of the Council meeting.

Dr. Lohr tendered his resignation as Chairman of the Council because of his imminent call into service. A vote of thanks to Dr. Lohr for his work as Chairman of the Council was passed unanimously.

Dr. W. A. Bloom, Fayette, was elected Chairman of the Council, and Dr. H. B. Goodrich, Hannibal, was elected Vice Chairman.

Curtis H. Lohr, Chairman.

Meeting of September 20

The Council of the Missouri State Medical Association met at the Coronado Hotel, St. Louis, at 10:30 a. m., September 20, 1942. Dr. W. A. Bloom, Fayette, Chairman, presided. Those present were Drs. A. S. Bristow, Princeton; Curtis H. Lohr, St. Louis; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; H. L. Mantz, Kansas City; Wallis Smith, Springfield; E. J. Nienstedt, Sikeston, Councilors; H. L. Kerr, Crane, President; R. L. Thompson, St. Louis, Secretary-Editor; C. E. Hyndman, St. Louis, Treasurer; R. M. James, Joplin; E. Lee Dorsett, Joseph C. Peden, C. H. Neilson and Robert Mueller, St. Louis.

The question of Executive Secretary was discussed and a resolution was adopted to place Mr. E. H. Bartelsmeyer on a less arduous advisory basis.

Mr. Raymond McIntyre, formerly connected with Central College, Fayette, in a promotional and contact capacity, was appointed Acting Secretary.

The Chairman announced that the following statement had been included in the platforms of both political parties following recommendation of the Committee on Public Policy of the Association: "We recommend that in the interest of the nation's health a comprehensive health program be developed based not on Federal but on local responsibility; controlled not centrally through a Federal agency but through the states and counties; not exclusively governmental and compulsory but voluntary so that the traditional cooperation in the care of the nation's health may be maintained and greatly intensified to meet the growing needs of the nation."

It was decided to hold the Annual Session of the Association as a two day meeting instead of the usual three day session, cutting the scientific program to meet the shortened time.

It was decided to encourage Councilor District Postgraduate meetings during the fall and winter months.

Dr. Robert Mueller, St. Louis, Missouri State Chairman of Procurement and Assignment Service, spoke briefly and answered questions of Councilors.

W. A. Bloom, Chairman.

MISCELLANY

NEW REGULATIONS CONCERNING GRANTING COMMISSIONS

The Surgeon General of the Army published detailed information concerning policies governing the initial appointment of physicians as medical officers on April 23, 1942. Necessary changes are given wide publicity, at his request, in order that the individual applicants

and all concerned in the procurement of medical officers may know the status of such appointments.

The current military program provides for a definite number of position vacancies in the different grades. The number of such positions must necessarily determine the promotion of officers already on duty and, in addition, the appointment of new officers from civilian life. Such appointments are limited to qualified physicians required to fill the position vacancies for which no equally well qualified medical officers are available. Such positions calling for an increase in grade should be filled by promotion of those already in the service, insofar as possible, and not by new appointments.

If this policy is not followed it would definitely penalize a large number of well qualified Lieutenants and Captains already on duty by blocking their promotions which have been earned by hard work. In view of these facts, it has been deemed necessary to raise the standards of training and experience for appointment in grades above that of First Lieutenant.

With this in view, the Surgeon General has announced the following policy which will govern action to be taken on all applications after September 15, 1942:

All appointments will be recommended in the grade of First Lieutenant with the following exceptions:

Captain. 1. Eligible applicants between the ages of 37 and 45 will be considered for appointment in the grade of Captain by reason of their age and general unclassified medical training and experience.

2. Below the age of 37 and above the age of 32, consideration for appointment in the grade of Captain will be given to applicants who meet all of the following minimum requirements: (a) graduation from an approved medical school; (b) internship of not less than one year, preferably of the rotating type; (c) special training consisting of three years' residency in a recognized specialty; (d) an additional period of not less than two years of study and practice limited to the specialty or of practice limited to the specialty.

3. Eligible applicants who previously held commissions in the grade of Captain in the Medical Corps (Regular Army, National Guard of the United States or Officers Reserve Corps) may be considered for appointment in that grade provided they have not passed the age of 45 years.

Major. 1. Eligible applicants between the ages of 37 and 55 may be considered for appointment under the following conditions: (a) graduation from an approved school; (b) internship of not less than one year, preferably of the rotating type; (c) special training consisting of three years' residency in a recognized specialty; (d) an additional period of not less than seven years of study and practice limited to the specialty or practice limited to the specialty; (e) the existence of appropriate position vacancies; (f) additional training of a special nature of value to the military service, in lieu of the foregoing.

2. Applicants previously commissioned as Majors in the Medical Corps (Regular Army, National Guard of the United States or Officers Reserve Corps) whose training and experience qualify them for appropriate assignments may be considered for appointment in the grade of Major provided they have not passed the age of 55.

Lieutenant Colonel and Colonel. In view of the small number of assignment vacancies for individuals of such grade, and the large number of Reserve Officers of these grades who are being called to duty, such appointments will be limited. Wherever possible, promotion of qualified officers on duty will be utilized to fill the position vacancies.

Much misunderstanding has arisen concerning recognition by Specialty Boards and membership in specialty groups. It will be noted that mention is not made of these in the preceding paragraphs. This is due to the variation in requirements of the different Boards and organizations. Membership and recognition are definite factors in determining the professional background of the individual but are not the deciding factors as so many physicians have been led to believe.

The action of the Grading Board, established by the Surgeon General in his office, is final in tendering initial appointments. Proper consideration must be given such factors as age, position vacancies, the functions of command and original assignments. All questionable initial grades are decided by this Board. Due to the lack of time, no reconsideration can be given.

There are in the age group of 24 to 45 more than a sufficient number of eligible, qualified physicians to meet the Medical Department requirements. It is upon this age group that the Congress has imposed a definite obligation of military service through the medium of the Selective Service Act. The physicians in this group are ones needed now for active duty. The requirements are immediate and imperative. Applicants beyond 45 years may be considered for appointment only if they possess special qualifications for assignment to positions appropriate to the grade of major or above.

REPORT ON ACCIDENTS

According to the annual yearbook of the National Safety Council, entitled "Accident Facts," 102,500 persons were killed in accidents in 1941. Motor vehicles accounted for 40,000 deaths and accidents in the home for 31,500. Motor accidents were responsible for injuring 1,450,000 persons and accidents in the home for 4,650,000. Other public accidents of all kinds were responsible for the deaths of an additional 15,000 persons and the injuries of 1,800,000. The National Safety Council points out that 97 per cent of the total accidents were preventable and cost the nation $4,000,000,000. On the job accidents killed 18,000 workers, injured 1,600,000, cost $850,000,000 and resulted in the loss of 460,000,000 man-days of work during 1941. Every type of motor vehicle accident except collisions with street cars showed a higher fatality total in 1941 than 1940. The bulk of the total increase came in collisions between motor vehicles, which were up 24 per cent; collisions with bicycles, up 20 per cent; collisions with fixed objects, up 23 per cent, and non-collision accidents, up 21 per cent. Deaths from motor vehicle-train collisions at grade crossings numbered 1,834 in 1941. This was even fewer than occurred in 1923, when motor vehicle travel was only a fraction of its present volume and when far fewer trains were operating than in the preparation for defense period of 1941. The release pointed out that of thirty-one industries studied the aeronautics industry was among the top five for 1941 in terms of both accident frequency and severity. Workers in the aeronautics industry suffered only 7.40 disabling injuries per million man-hours as compared with an average of 15.39 for all thirty-one industries. Of the 40,000 persons who were killed in automobile accidents 8,000, or one in five, had been drinking. State summaries for 1941 showed that 11 per cent of the drivers involved in fatal accidents had been drinking and that 14 per cent of the pedestrians killed had been drinking, 1,900 of the 13,600 pedestrian deaths. Summaries for the twenty-two states showed 27 per cent more drinking drivers than were involved in fatal accidents for 1940.

ANNUAL REPORT OF PUBLIC HEALTH SERVICE

The seventieth annual report of the U. S. Public Health Service for the fiscal year 1941 states that the provisional death rate from all causes for the calendar year 1940 was 10.5 per thousand of population, about 1 per cent higher than in 1939, when the lowest death rate in the history of registration occurred. The maternal mortality rate declined for the eleventh consecutive year. Only fifteen of forty-one states reporting

had an increase over 1939. For the entire group the rate for 1940 was 3.6 per thousand births. The 1940 infant mortality rate of 47 per thousand live births was the lowest on record, representing a decline of 16 per cent from the rate of 56 per thousand for 1936. There was a slight increase in the birth rate for 1940; available data for the first quarter of 1941 indicate that the upward trend will continue. The 1940 death rate from automobile accidents was 24.3 per hundred thousand of population, the highest since 1937. Data for the first quarter of 1941 indicated an alarming increase in automobile fatalities; the rate increased 22 per cent over that for the first quarter of 1940.

Despite continued warnings, plague in rodents continues to spread eastward. One fatal human case was reported in 1940.

The report discusses the cooperation of the public health service with other agencies and mentions particularly the twenty-two fellowships in public health and medicine granted in 1940-1941 to medical graduates from Latin American countries. Other activities included the appointment of a special committee to study civilian defense in Great Britain and the development of a program for emergency medical service in the Office of Civilian Defense, Washington.

The most important health legislation enacted during the year was designed to assist the service in meeting the special problems created by the national defense program. Congress in March 1941 appropriated more than $500,000 to provide public health service personnel and facilities to state health departments in critical areas. The regular appropriation to the service for the fiscal year 1942 included a sum of $1,235,000 for emergency health and sanitation activities. In a subsequent act an additional $1,940,000 was allocated to expand these services. A further appropriation of $1,250,000 was made to assist schools of nursing in training additional student nurses and in providing refresher courses and postgraduate training.

Emphasis was placed on the federal-state cooperative programs for general public health services, venereal disease control and industrial hygiene. In 1940 officials of the army, the navy and the public health service and state health departments signed a working agreement for the control of venereal diseases in extracantonment areas. The state health departments, with the cooperation of the public health service, agreed to prosecute the control of venereal disease in civilian populations contiguous to military camps, and the army and navy agreed to supply information on contacts of infected military personnel to local health authorities. Prostitution complicates the control of venereal disease in practically all defense areas. The Selective Service System adopted the routine blood testing of all registrants called for physical examination. The tests were made in the state laboratories, and the public health service undertook to tabulate the results of the serologic tests and of physical examinations for syphilis and gonorrhea. Preliminary reports indicate that clinical syphilis rates are much lower among the first million men examined in 1940 than in the first million examined in 1917. The data reveal a wide variation in the prevalence of venereal disease from state to state. Just prior to the close of the fiscal year a venereal disease control program in representative defense areas was planned in cooperation with the Works Projects Administration to evaluate methods of venereal disease control in selected areas, including urban communities of varying population sizes and rural communities. Special emphasis will be placed on the follow-up and treatment of contacts of military and industrial personnel. In 1935 only six states had functioning industrial hygiene services. In 1941 thirty-two states and four large cities had industrial hygiene units, reflecting the impetus given to these programs under title VI of the Social Security Act. In February 1941 the subcommittee on industrial hygiene and medicine of the Health and Medical Committee designated the Division of Industrial Hygiene of the public health service as the agency to coordinate all activities for the health of defense workers and, under the program adopted, special assistance has been effected and concentrated projects have been launched.

Two new buildings at the National Institute of Health, Bethesda, Md., were occupied during the year, completing the physical plant of the institute. A division of chemotherapy in the institute was created by merging the functions and personnel of the division of pharmacology, the nutrition unit of the division of chemistry and the chemotherapy unit of the division of infectious diseases. A unit for coordination of research in the field of gerontology was set up and a national advisory committee created.

Substantial protection against whooping cough by use of a two dose alum precipitated pertussis vaccine developed at the National Institute of Health constitutes one of the most immediately practical accomplishments during the year. A hyper-immune rabbit serum for the treatment of Rocky Mountain spotted fever also was developed. Present indications are that in the serum a useful therapeutic agent is found for the first time. Other research showed that, contrary to popular conception, there is little difference in the severity of Rocky Mountain spotted fever in Eastern states as compared to the Northwestern states, where it has long been thought excessively virulent. New foci of the infection were found in sixty-two counties in eighteen states.

Of fifteen recommended grants-in-aid for cancer research, recommended by the National Advisory Cancer Council, twelve, totaling $77,780, had been paid. Cancer control programs were established in Arizona, New Mexico, Wyoming, Montana and Idaho, bringing the total of state and territorial cancer programs to thirty-nine. Consultation services were provided to these organizations, and radium loans to forty-one hospitals were renewed and loans were made to three other institutions. About 2,000 patients were treated in these hospitals with government owned radium; thirty-one trainees in the diagnosis and treatment of cancer were on the payroll.

BOOK REVIEWS

Athletic Injuries, Prevention, Diagnosis and Treatment. By Augustus Thorndike, M.D., Surgeon in the Department of Hygiene, Harvard University, etc. Second edition, thoroughly revised. Illustrated with 105 engravings. Philadelphia: Lea & Febiger. 1942. Price $3.00.

This book is written for persons concerned with the care of the health of participants in organized athletics. It is well organized and is divided as the title implies. A very complete compilation of statistical experiences of the author is included. The illustrations are good and are to be commended for their simplicity and completeness.

This book should be of great value to athletics as a whole. D. A. J.

The Electrocardiogram and X-Ray Configuration of the Heart. By Arthur M. Master, B.S., M.D., F.A.C.P., Cardiologist to the Mt. Sinai Hospital, New York; Assistant Professor of Clinical Medicine, Columbia University, New York. Second edition, enlarged and thoroughly revised. Illustrated with 108 figures, containing 163 illustrations. Philadelphia: Lea & Febiger. 1942. Price $7.50.

This revised edition is considerably larger than the first edition because of the addition of numerous case reports with illustrations and a number of new sec-

tions including the following subjects: "Tricuspid Valve Disease"; "Giant Left Auricle"; "Myxedema"; "Diodrast Visualization of the Cardiac Chamber," and "Acute Diseases." Furthermore, the conditions in which the electrocardiogram is specific are contrasted with those in which it is not characteristic. The sections on "Valvular Disease," "Congenital Heart Disease" and "Pulmonary Heart Disease" have been enlarged. The book covers all phases of heart disease except therapy, particularly those diseases which lend themselves to roentgenologic diagnosis or interpretation.

The clinical data in the new case reports are given in greater detail than in the first edition in order to make interesting diagnostic points. Many of the added cases were examined postmortem and the autopsy findings are noted.

Oblique and lateral views have been added in a few cases in which the postero-anterior view alone was not entirely adequate for the point at hand. J.A.B.

OCUPATIONAL DISEASES. Diagnosis, Medicolegal Aspects and Treatment. By Rutherford T. Johnstone, A.B., M.D., Director of the Department of Occupational Diseases, Golden State Hospital, Los Angeles, California, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1941. Price $7.50.

This is an unusual book devoted entirely to the recognition of disease as related to the various occupational hazards.

It has been only in recent times that medicine has made an attempt to come abreast of industrial diseases, hence this book is fitting.

The text is complete in every detail including history of disease, essential facts and findings for diagnosis, treatment and compensation for illness, both temporary and permanent. The book is so divided that the various industrial hazards are grouped together. The various hydrocarbons are discussed in one section. Lead, silicosis, hernia, the industrial back and dermatosis all are covered adequately in respective sections. Each section is complete in itself.

The introductory chapters are devoted to the purpose and function of the workmen's compensation and function of the physician.

This book is indispensable to the industrial physician and would serve a definite role in the general practitioner's life. There is no doubt but that a large number of law suits would never be tried if the physician were more informed on the various industrial hazards.
A. E. U.

PHYSICIANS' REFERENCE BOOK OF EMERGENCY MEDICAL SERVICE. A Compilation, Chiefly From Medical Literature, Presenting the Practical Experience and Lessons Acquired in Handling Civilian War Casualties. New York: E. R. Squibb & Sons. 1942.

Although published by E. R. Squibb & Sons this book contains no advertising material whatsoever and has been compiled, printed and distributed purely as a public service in the present emergency. It comprises chiefly excerpts from medical literature, largely British literature, presenting the practical experience and lessons acquired in handling civilian war casualties. Four fifths of it has been derived from foreign sources not readily available in this country.

The book covers the general problem of civilian defense, protection of hospitals and civilian health and matters pertaining to the organization and functioning of hospital services for air raid casualty work. It abstracts or reprints in full the recent literature on management of casualties, including the treatment of shock, burns, wounds and fractures and the prevention and treatment of wound infections; the nature and treatment of blast and crush injuries; the identification and action of war gases and differential diagnosis of injury from them; first-aid and general treatment and methods of decontamination. Each page carries a running head giving the context. Complete author and subject indexes are included.

This Emergency Reference Book offers to American physicians in one compact volume a complete digest of first-hand medical experience in handling the many new problems which have arisen in connection with aerial warfare.

STEDMAN'S PRACTICAL MEDICAL DICTIONARY. By Stanley Thomas Garber, B.S., M.D., University of Cincinnati, College of Medicine. Fifteenth Revised Edition, With Etymologic and Orthographic Rules. A William Wood Book. Baltimore: The Williams & Wilkins Company. 1942. Price With Thumb Index $7.50 (Without Thumb Index $7.00).

The fifteenth edition of Stedman's dictionary is more than an ordinary revision. The entire work was reset for the new edition, therefore an unusual number of additions, eliminations and corrections could be made without regard to the cost of such changes.

Basically, the dictionary retains the features that have made it authoritative, reliable and easy to use. It includes all the medical, surgical, pharmacal, biologic, chemical, dental and related scientific terms that are encountered daily. It is an indispensable reference book.

MODERN ATTACK ON TUBERCULOSIS. By Henry D. Chadwick, M.D., Superintendent of Westfield State Sanatorium, 1909-1929; Tuberculosis Controller of the City of Detroit, 1929-1933, etc., and Alton S. Pope, M.D., Chief, Bureau of Communicable Diseases, Department of Health, Chicago, 1926-1929, etc. New York: The Commonwealth Fund. 1942. Price $1.00.

One would expect that a hundred page book by Chadwick and Pope on "The Modern Attack on Tuberculosis" would be concise and meaty. It is just that. This is a handbook which every medical student and every public health nurse should read.

The authors make no pretense of originality. They have assembled in brief, concise form the accepted views on tuberculosis control including epidemiology, diagnosis, treatment and control. To do this in a hundred pages is difficult and, of course, controversial matters are not discussed.

Those who are familiar with tuberculosis work will appreciate this well written book. The general practitioner who remembers his tuberculosis from lectures twenty years ago will do well to obtain it. H. L. M.

SYNOPSIS OF ANO-RECTAL DISEASES. By Louis J. Hirschman, M.D., F.A.C.S., Proctologist, Harper, Charles Godwin Jennings, and Woman's Hospitals; Consulting Proctologist, Detroit City Receiving, Evangelical Deaconess, Wayne County Hospitals, Children's Hospital of Michigan, Detroit Tuberculosis Sanitarium, Detroit. With 182 Text Illustrations and Twelve Color Plates. Second Edition. St. Louis: The C. V. Mosby Company. 1942. Price $4.50.

The revised edition of this complete book on proctology is worth-while for every practitioner of medicine. Although this book is written mainly for the general practitioner, the excellent chapters on anesthesia and foci of infection are worthy of the anesthetist and internist, respectively.

The book has many colored photographs and drawings interspersed with the reading material and contains many excellent remedies and treatments from the author's years in the practice of this specialty.

This book is extremely timely and exceptionally well done, truly a book for every physician's book shelf.
S. J. F.

The Management of Fractures, Dislocations, and Sprains. By John Albert Key, B.S., M.D., St. Louis, Missouri, Clinical Professor of Orthopedic Surgery, Washington University School of Medicine; Associate Surgeon, Barnes, Children's, and Jewish Hospitals, and H. Earle Conwell, M.D., F.A.C.S., Birmingham, Alabama, Orthopedic Surgeon to the Tennessee Coal, Iron and Railroad Company and the Orthopedic and Traumatic Services of the Employees' Hospital and to the American Cast Iron Pipe Company, etc. Third Edition. St. Louis: The C. V. Mosby Company. 1942. Price $12.50.

This book is a comprehensive, sound presentation, profusely illustrated and valuable to student, practitioner or specialist.

Throughout the volume the various views are mentioned and the method of choice in a given case then illustrated or described along with the reasons therefor.

Chapter II covering nonunion is to the point. Chapter III covers reduction under various anesthetics and Boehler's method of local anesthesia is justly recognized and well illustrated. Open operation and operative treatment are discussed and stainless steel elevated to its proper place. Sherman's stainless steel plates and the local implantation of sulfonamide powder are also thoroughly discussed.

Chapter VII on compound fractures and war wounds and their proper handling with a suggested plan of treatment of gas gangrene was excellent and should be adopted.

Chapter XI, by Edgar F. Fincher, of Atlanta, on fractures of skull and brain trauma, holds a place along with Chapter XII, on fractures of the jaws and face by Missouri's own James Barrett Brown.

Chapter XIII on injuries of the spine is well illustrated.

The book is up-to-date, the subject matter clearly and well presented and in my opinion it is the one book of its kind to be of great value in advancing this subject.

W. R. H.

The Reception of William Beaumont's Discovery in Europe. By Dr. George Rosen. With a Foreword by Dr. John F. Fulton. New York: Schuman's. 1942.

Beaumont is closely linked with the medical history of Missouri because he settled in St. Louis to practice surgery after resigning from the U. S. Army Medical Corps. His name was carried down through the years by the Beaumont Medical College. This later was fused with another western name into the Marion-Sims Beaumont Medical College and ultimately this became the Medical School of St. Louis University.

This small book seeks to record the great influence that Beaumont impressed upon the new pathways of human physiology whose best teachers were then in European medical universities. The foreword by Dr. John F. Fulton, Professor of Physiology at Yale, could serve as a review better than any other.

As Fulton points out, it is probably true that there were more students and research workers in physiology in Europe who were equipped to appreciate the importance of Beaumont's backwood studies of gastric digestion through the peep-hole in Alexus' gizzard.

Briefly, Rosen shows that the Germans were the first to recognize the revolutionary significance of Beaumont's observations and used them in the promotion of rational physiologic medicine. The English followed but used these new facts in clinical prophylaxis and therapy, while the French later took notice of Beaumont by developing artificial fistulae in animal experimentation.

Aside from this item of Rosen's being a neat historical study, bibliographically supported and generously indexed, the book is full of meaty material for the gastro-enterologist. Only 500 copies have been printed by Schuman, the rare medical bookseller in New York. The cloth covers are adorned attractively by facsimile pages of the Beaumont family Bible which resides in the University of Chicago Medical Libraries. With the increasing interest in medical history and Beaumont, this small book will soon become a rarity. E. H. S.

Urology in War. Wounds and Other Emergencies of the Genito-Urinary Organs, Surgical and Medical. By Charles Y. Bidgood, Lt. Comdr. (MC) U.S.N.R. Baltimore: The Williams & Wilkins Company. 1942. Price $2.00.

This book of seventy-six pages, divided into eight different chapters, is well written and beautifully illustrated. It has the approval of Rear Admiral Ross T. McIntire, Surgeon General of the U. S. Navy. The volume treats with injuries to every organ of the male genito-urinary system and deals rather extensively, considering its compactness, with emergency therapy. Of special interest is the utilization of the cavities of the corpora cavernosa for the administration of blood and other transfusions where it is impossible to locate veins in the customary places.

A complete chapter is devoted to anesthesia for urologic procedures in which the preliminary medication is discussed and the technic of inhalation, spinal, regional, sacral and intravenous types of anesthesia are outlined.

Inasmuch as the volume is devoted mainly to emergency therapy, little space is given to the ordinary preliminary examination which is so necessary in civilian practice.

The book should be valuable to every practicing physician. N. S. M.

Hughes' Practice of Medicine. Sixteenth Edition. Revised and Edited by Burgess Gordon, M.D., Clinical Professor of Medicine, Jefferson Medical College, etc. With sections on Nervous and Mental Diseases, by Harold D. Palmer, M.D.; Diseases of the Skin, by Vaughn C. Garner, M.D.; and Contributors, Sections on Clinical Methods, by Robert Charr, M.D.; Articles on Endocrinology, by Abraham E. Rakoff, M.D., Legal Aspects of Medicine, by Louis M. Stevens, Esq. Philadelphia: The Blakiston Company. 1942. Price $5.75.

This book has passed through sixteen editions. In the earlier editions it was written as a compend for aid of the student to be used in connection with a larger treatise. The book has outgrown the original plan and now is intended to present in concise form the clinical features of disease together with treatment. Some chapters have been rewritten completely and all theoretic and controversial views have been avoided. One section is devoted to the legal aspects of the practice of medicine.

Many new subjects recently recognized as entities have been included. The especially important subjects are chemotherapy, endocrinotherapy and vitamin therapy. The final section includes a discussion of diseases of the skin with many prescriptions useful in dermatologic treatment.

The authors of this book have succeeded in condensing an enormous amount of useful information into a relatively small volume. R. V. P.

"Sulfathiazole (a derivative of sulfanilamide) is an effective adjunct to surgery in cases of severe advanced acute appendicitis and in the complications of appendicitis," Robert K. Anderson, M.D., Chicago, reports in *The Journal of the American Medical Association* for March 14. His conclusion is based on results obtained in a series of 22 patients with advanced disease of the appendix who were treated by removal of the appendix and with sulfathiazole medication.

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SURGICAL LESIONS OF THE ILEUM

ARTHUR PURDY STOUT, M.D.

NEW YORK

The various diseases which affect the ileum give rise to certain trains of symptoms. If these symptoms subside promptly, the case generally is not brought to the attention of a surgeon. But if they grow worse rapidly, or if they persist and become chronic, then the question of surgical intervention generally arises. The symptoms to which I refer especially are obstruction, pain, diarrhea, bleeding from the rectum, shock or the formation of a mass which may be palpable or capable of being visualized by roentgen ray. The symptoms may be acute and urgent or they may be subtle and chronic.

When one stops to consider the causes which give rise to these symptoms, one cannot fail to be impressed by the fact that they are many and those who treat them must be armed with knowledge of a varied array of diseases.

My object today is to present a general survey of a majority of these causes with illustrations of some of the most important.

Table 1 divides surgical lesions of the ileum into five general heads for purposes of convenience. Accidental lesions usually are due to things which are quite familiar such as penetrating wounds of the abdomen, obstruction from bands, twisting, foreign bodies and tight necks of hernial pouches. Less common are embolism of the mesenteric arteries in cardiac and other diseases and thrombosis of the mesenteric arteries and veins. I have, for instance, seen thrombo-angiitis obliterans affect the mesenteric arteries and cause gangrene of the ileum. Irradiation of the pelvis for tumor or to produce an artificial menopause has resulted in obstruction of the ileum from cicatricial deformity. Peptic ulcers have been caused in two ways: through the inadvertent anastomosis of the ileum to the stomach and through the occurrence of heterotopic secreting gastric glands, especially in Meckel's diverticulum. Such peptic ulcers generally occur in youth, especially in boys around the age of 16 years, and they may perforate.

Table 1. *Surgical Lesions of the Ileum*

Accidental	Trauma	Cicatricial stenosis
	Hernia	Trauma
	Bands	Irradiation
	Volvulus	Foreign bodies
	Mesenteric	Secondary peptic ulcer
	Thrombosis	Gas cysts
	Embolism	
Inflammations	Tuberculosis	Peritonitis
	Syphilis	Regional enteritis
	Typhoid	Allergic
Malformations	Diverticula	Heterotopia
	Meckel's	Enterocystoma
	Acquired	Lymphoid hyperplasia
	False	
	Endometriosis	
Vitamin and metabolic imbalance	Mucosal hyperplasia	
	Mucosal ulceration	

Neoplasms

A. Benign

Adenoma	Hemangioma
Carcinoid	Lymphangioma
Leiomyoma	Neurofibroma
Lipoma	Neurilemoma
Fibroma	

B. Malignant

Carcinoma	Sarcoma
Carcinoid	Lympho-
Leukemia	Leiomyo-
Hodgkin's disease	Angio-
	Fibro-

C. Secondary

Metastases
Mesenteric tumors

Of the inflammatory lesions the two commonest are regional enteritis or ileitis and tuberculosis. Syphilis rarely affects the ileum. Perforation of typhoid ulcers of Peyer's patches used to be a not uncommon terminal event when typhoid was prevalent and it is still frequently seen in China. The ileum may perforate sometimes if it forms part of the wall of a peritoneal abscess. I have seen it in appendicitis and secondary to the peritonitis following perforation of gastric and duodenal ulcers and the rupture of a pyosalpinx. Allergic inflammations of the retroperitoneal, mesenteric and intestinal tissues certainly can take place and may reach such a degree of edema and leukocytic inflammation that a palpable mass may be felt and intestinal obstruction be caused. However, such

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occurrences are rare and little is known about them.

Malformations are an uncommon source of ileal disturbance. Meckel's diverticulum is not of infrequent occurrence but it is not common for it to cause symptoms. Almost any of the lesions, which can affect other parts of the ileum, may originate in this congenital diverticulum but one should recall especially the fact that heterotopic gastric glands may cause ulceration, bleeding and perforation and that invagination may occur because of a tumor. Other lesions will be discussed.

Vitamin and metabolic imbalance affect the ileum. They cause lesions which clinically are difficult to interpret and thus generally confuse the diagnostician. A common lesion is mucosal edema and hyperplasia forming big folds which may narrow the lumen, cause some obstruction and prove a stumbling block in roentgen ray diagnosis. In long-standing cases superficial ulceration, fibrosis and chronic ileus may necessitate operative interference.

The neoplasms which may form in the small intestine are relatively few in comparison with those that may form in the stomach and large bowel. From the point of view of symptomatology they may be divided into the few which are exo-enteric and project into the peritoneal cavity and the endo-enteric which project into the lumen. The exo-enteric tumors are usually benign and give no symptoms until they grow large enough to form a palpable mass. The endo-enteric tumors are of all kinds and they are symptomless, as a rule, until one of three things happens: ulceration with the appearance of blood in the stools, deformity of the gut wall producing obstruction or invagination of the intestinal wall from intussusception. Severe hemorrhages causing symptoms of shock are rare, usually being associated either with the ulceration of a smooth muscle tumor or a lesion of Meckel's diverticulum. It is usually the malignant tumors which cause chronic ileus but intussusception may be caused by any endo-enteric tumor, benign or malignant, primary, infiltrating from without or mestastatic.

Before proceeding to the case demonstrations, I want to say a word about intussusception. This may start anywhere in the ileum but it generally begins near the ileocecal valve and the invagination passes to the middle of the transverse colon. With very lax mesenteries it may reach the anus, but this is rare. It occurs especially at two periods of life: in early infancy when it probably usually is due to lymphoid hyperplasia and in later years when it generally is caused by an endo-enteric tumor.

CASE REPORTS

Case 1. (Cicatricial Stenosis Following Irradiation.) Patient, a female, had had artificial menopause five years previously procured by roentgen ray. There had been progressive loss of weight for six months. Barium meal showed constriction in the ileum 25 cm. above the valve. It was adherent to the right tube. She was cured by resection.

Case 2. (Tuberculosis of Terminal Ileum.) Female, aged 19, had had symptoms of slowly increasing ileus for two years with loss of weight, periods of diarrhea and pulmonary tuberculosis. There had been an acute attack with complete obstruction for eleven hours. At ileocolectomy tuberculosis was found in nodes and terminal 7 cm. of the ileum. The patient died two years later of tuberculosis.

Case 3. (Regional Enteritis—Early Acute.) Male, aged 40, had had pain in the lower abdomen for two weeks with slight fever but normal blood count. There was a mass and some tenderness in the right lower quadrant. Patient is well after four years.

Case 4. (Regional Enteritis—Sclerosing With Fistulas.) Female, aged 17, had had abdominal pain for five years with occasional nausea, vomiting and diarrhea. Appendix was removed two weeks after onset. There was marked malnutrition and failure to develop in the five years since appendectomy. Weight was 57 pounds. The terminal 40 cm. of the ileum was affected. Ileocolectomy was done. Improvement and gain in weight resulted but diarrhea continued and hypoproteinemia, edema of ankles and malnutrition returned.

Case 4a. (Allergic Enteritis of Ileum.) Male, aged 27, gave a history of attacks of abdominal pain associated with vomiting and urticaria of seven years' duration. One year previous, the attack was associated also with severe diarrhea and bleeding per rectum. At that time 34 cm. of small intestine and the appendix were removed at St. Mary's Hospital, Brooklyn, with a diagnosis of regional enteritis. The attacks continued after this. Roentgen ray of barium in the ileum showed coarsening of the folds, segmentation and hypertonicity.

Case 5. (Meckel's Diverticulum With Peptic Ulcer.) Male, aged 14, had had tarry stools associated with recurrent attacks of crampy pain in the right lower quadrant for two and a half years. Roentgen ray was normal. The big diverticulum had gastric and pancreatic tissue in its tip and a peptic ulcer was in the diverticulum at the junction of the gastric and ileal mucosae. Patient was well twenty months after removal.

Case 6. (Endometriosis of Ileum.) Female, aged 41, had had unexplained cramping abdominal pains coming on in the evening, lasting two hours, accompanied by nausea which was relieved by vomiting for five years. Repeated roentgen rays were normal until special ileal studies showed an obstruction of the ileum 10 cm. from the valve due to twisting. This had no relation to periods. Patient was improved by resection.

Case 7. (Enterocystoma of Ileum.) Male, aged 30, had had epigastric pain, nausea and vomiting for fourteen hours. Pain shifted to the right lower quadrant. A similar attack had occurred two weeks before. There was tenderness to the right of the umbilicus. An area of gangrene was found in a loop of ileum and this was resected.

Case 8. (Lymphoid Hyperplasia of Ileocecal Valve.) Male, aged 7 months, had a second attack of intussusception with abdominal cramps, vomiting and passage of blood and mucus per rectum. Intussusception passed to the middle of the transverse colon and after reduction a tumor was felt in the cecum. Ileocecal resection therefore was done. Patient is well after three years.

Case 9. (Vitamin Deficiency Reaction in Jejunum.) Male, aged 52, gave a history of frequently recurring duodenal ulcer for twenty-five years with gastro-enterostomy five years previously. Recently there had been loss of weight, constipation, he had followed a low residue diet, had done self lavage of stomach. A marginal ulcer developed and roentgen ray showed thickening of the jejunal folds which was interpreted as due to

vitamin deficiency. The gastro-enterostomy was taken down and part of the proximal jejunal limb was resected.

Case 10. (Fibroma of Jejunum.) Female, aged 49, had had an abdominal mass for one year. A movable, large suprapubic mass could be palpated abdominally and in the left vaginal vault. It was 25 mm. in diameter and attached by a 2.5 cm. pedicle to the jejunum. After resection she remained well for ten years.

Case 11. (Leiomyoma of Jejunum.) Male, aged 60, had had several attacks of syncope followed by passage of black tarry stools during a period of two months. Gastrointestinal series were normal and no special small intestine study was done. Tumor was 2 feet from the duodenojejunal angle. There was a dumbbell-shaped ulcer in the apex of the intraluminal portion. Patient is well eight years later.

Case 12. (Multiple Lipomatosis and Diverticula of Ileum.) Female, aged 73, had abdominal pain of forty-seven years' duration with chronic constipation and frequent nausea and vomiting. There were extreme emaciation, abdominal distention and visible peristalsis. Roentgen ray was interpreted as multiple adhesions. She had had twelve years of medical treatment without benefit. Ileostomy and finally enterocolostomy were done. There was extreme emaciation, weight was 87 pounds, with concentration of fat as submucous lipomas and in the mesentery. There were multiple diverticula.

Case 13. Female, aged 62, had had two attacks of abdominal cramps, nausea and vomiting associated with omentum incarcerated in an inguinal hernia. When repair of this did not relieve symptoms she was thought to have an ileal obstruction due to adhesion bands. Operation showed a constricting obstructive lower ileal carcinoma with metastases to three mesenteric nodes.

Case 14. (Carcinoid of Ileum.) Female, aged 42, had had abdominal pain for eleven months with occasional nausea and vomiting, growing worse in the previous two weeks, when she vomited everything taken by mouth. There was 30 pounds weight loss. Flat plate showed small gut distention. Ileocolostomy and biopsy of mesenteric node were done and ileocolectomy after one month. Recurrence and death with liver metastases occurred fifty-three months postoperatively.

Case 15. (Lymphosarcoma of Terminal Ileum.) Male, aged 13, had had periumbilical pain and melena for three weeks, vomiting and obstipation for five days. Roentgen ray after Abbott tube showed intussusception of ileum into cecum. Ileocolectomy was done. Tumor was found in terminal ileum with extension to the cecum and appendix. Death occurred two months later with mestastases in almost every part of the body.

Case 16. (Lymphatic Cyst of Mesentery.) Male, aged 3 years, was admitted with symptoms of acute intestinal obstruction suggesting intussusception. At operation the ileum was found obstructed by a thin-walled lymphatic cyst which sprang from the mesentery and completely encircled the gut. He died seven days after resection.

In conclusion I should like to stress the fact that the clinical diagnosis of many of these lesions has been aided greatly by the great advances made in the technic and interpretation of roentgenograms. In the Columbia University College of Physicians and Surgeons, the close relationships maintained between surgeons, roentgenologists and surgical pathologists have resulted in a broader basis of knowledge and understanding and I should like here to testify to the importance and value of such cooperations in all branches of medicine.

630 West 168th Street.

FAITH, HOPE AND CURE-ALLS

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WASHINGTON, D. C.

In the spring of 1941, at the time of the litigation between the United States of America and the so-called "Electreat Mechanical Heart" gadget, the majority of the witnesses, members of the Missouri State Medical Association, became somewhat better acquainted with the functions, objectives and problems of the United States Food and Drug Administration. They learned that these functions, objectives and problems, as they pertain to the Drug Division of this Administration, constitute, in many respects, those of the medical profession at large.

Those familiar with the Electreat case will recall that this misnomer, this so-called "Mechanical Heart," resembled some bastard offspring of a rolling pin and a flashlight. A metal roller protruded from the end of the flashlight tube where the light reflector and the lamp belonged. This roller and the tube were insulated one from the other and each served as a terminal for a miniature faradic coil. This faradic coil and its motivating flashlight batteries were concealed completely within the tube. Pushing a knob, which extended through the tube, completed the primary and secondary circuits. In action the gadget emitted a weird, buzzing sound. Holding the tube in one hand and applying the roller elsewhere to the body produced the characteristic stinging, painful faradic stimulus. Actually the device proved to be a modern adaptation of Grandad's old medical battery.

In a booklet or the labeling accompanying this particular device, the manufacturer recommended this "Electreat Mechanical Heart" for all sorts of serious and trivial ailments from falling hair to cold feet inclusive. He offered all this at $15.00 per gadget. Incidentally, this manufacturer testified that during his twenty some years in business he had made and distributed approximately a quarter of a million of these devices.

Like most drugs or devices of the cure-all variety, two of the Graces, Faith and Hope, motivated the layman and, it is alleged, a few physicians, to purchase this gadget. It seems doubtful that the third Grace, Charity, had any place in the transaction. Not infrequently a manufacturer or distributor of these cure-alls endeavors to create an illusion of his charitable motives but, generally speaking, other uglier or at least less worthy incentives seem more obvious. These astute dealers frequently engender this misguided faith and hope by means of their false and misleading, sometimes fraudulent, promises or inferences accompanying the article in the guise of labeling, or their dishonest, sometimes vicious claims made by means of the radio, the press and other advertising media.

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Senior Medical Officer, U. S. Food and Drug Administration.

The Congress, fulfilling the primary function of good government, that is, to protect its citizens, has passed several laws to curb such overenthusiastic, misleading, false or fraudulent claims. One such act of the Congress subjects advertising through newspapers, magazines and by radio to the jurisdiction of a statute enforced by the Federal Trade Commission. The Post Office Department enforces another statute pertaining to mail frauds. The Congress created additional protection for the public by passing the Food and Drugs Act of 1906. This law applied essentially to the claims made on the labeling accompanying the product. For all its shortcomings, this act constituted a decided step forward. By another act in 1927, the Congress originated the Food and Drug Administration to enforce the Food and Drugs Act, the Import Milk Act, the Filled Milk Act, the Tea Act and the Caustic Poison Act. When the Food, Drug, and Cosmetic Act of 1938 replaced the old Food and Drugs Act of 1906, the Congress made the Food and Drug Administration responsible for the enforcement of this new act.

In peacetime a personnel of about nine hundred individuals performs this enforcement work of controlling a greater than an eleven billion dollar industry. These nine hundred Administration members include physicians, veterinarians, chemists, bacteriologists, pharmacologists, inspectors, stenographers, clerks and so forth. Sixteen Food and Drug Inspection Stations, strategically located throughout the United States, utilize the major portion of this personnel. There is one such station in Kansas City. This station, like all the others, has well equipped laboratories, and is staffed with chemists, inspectors, clerks and other workers. Three district chiefs, located in New York, Chicago and San Francisco, supervise and coordinate the work of these stations. The administrative staff, staff laboratories and the technical staffs of the many divisions are in turn located in Washington.

In spite of this, the facilities of the Administration and obviously this relatively small personnel do not permit complete coverage of the multitude of individuals and industries coming within the jurisdiction of these statutes. Doubtless, some violations escape detection. However, by systematic planning the Administration endeavors to protect the public from all material forms of adulteration and misbranding.

Periods of national disaster such as floods, hurricanes or emergencies created by the appearance of some dangerous drug on the market increase the volume of work done by the Administration to tremendous proportions. For instance, many can recall the tragedy of the Massengill Elixir of Sulfanilamide. The Massengill Company produced a soluble sulfanilamide using diethylene glycol as a solvent. They distributed this preparation apparently without knowledge as to the severe toxicity of this solvent. A fatality list of approximately one hundred resulted. More recently, the Winthrop Chemical Company shipped a number of sulfathiazole tablets heavily contaminated with phenobarbital. In both instances the Administration was confronted with the gigantic task of apprehending all the outstanding lots of this material. Since resultant tragedies bear a direct relationship to the length of time such poisonous goods remain available to the public, these jobs must be accomplished in a minimum period. Incidentally, both firms were subjected to criminal prosecutions for these violations of the law, with the imposition of a fine in the first case totaling $29,600, and in the second, $15,800.

At the beginning of the defense emergency, work increased because of the needs of the Armed Forces. At the same time, the Administration contributed a considerable number of its personnel to these Armed Forces. In December when hostilities began, the Administration became a defense agency, fully prepared to render a service which, though perhaps not as spectacular as that of the uniformed branches of the government, is quite as necessary to the welfare of our country and to the winning of this war. To illustrate, an already existing shortage of drugs may lead to cases of adulteration. A short time ago the chief of one of our Food and Drug Inspection Stations reported finding a batch of strychnine tablets containing a dose of strychnine 50 per at variance with that declared on the label. In another recent instance, tablets of sulfanilamide were found to contain only two thirds of the dose declared on the label. Such debasement of drugs can be detrimental to the war effort.

The first act in the "Electreat Mechanical Heart" litigation occurred many months prior to the trial. During the course of his regular duties an inspector found this gadget on the open market and secured a sample. His selection of this particular device was not an accident. Because of the almost endless number of items sold to the laity, a hit or miss procedure would be utterly ineffective and perhaps disastrous. The inspector picked up this gadget in the course of executing a prearranged program—a plan designed by the Administration to concentrate its efforts on certain types of goods. In the instance of the "Electreat Mechanical Heart" the law of 1906 did not cover devices, but under the new act of 1938 this item became actionable. Hence, gadgets of this type constituted a long past due portion of the then current enforcement program.

In accordance with the customary routine, after the inspector procured the sample, he submitted it to his Food and Drug Inspection Station at Kansas City. Had the Kansas City Station decided that the article was not in violation of the law or, for some reason, not within the scope of the project, the matter might have been filed but not forgotten. But the Kansas City office thought the item a violation and this gadget followed the customary route. It was forwarded to the district office at Chicago for further consideration. From the district office

it was referred to the staff office in Washington for final action.

To the average physician the process of determining whether or not a "cure-all" drug or device violates the law probably appears simple. To the physician an article is either useful or useless, innocuous or dangerous, and the claims made either true or false. Actually the procedure is not that easy. Such an arbitrary pronouncement by an enforcement body would be contrary to democratic principles. Instead, each item and its relationship to the law must be given careful study before the processes of the law may be invoked.

While both the new and the old acts deal specifically with the label and labeling, the container and the contents of the article, the procedure under the new act is more extensive. Its broader scope gives a greater consumer protection in that it includes devices and cosmetics. The Act instituted a new type of control in its provision for the establishment of safeguards and its positive labeling requirements.

Labeling is defined by the Act as all written, printed or graphic matter accompanying an article as well as that in or upon the package or individual container. According to a recent court decision, labeling in some instances may include the collateral advertising shipped apart from the article. The law provides that no labeling shall be false or misleading in any particular. Information required by the law to appear on the label or labeling must be placed thereon conspicuously and in terms which the average consumer will be likely to read and understand under customary conditions of purchase and use. Labeling may mislead by the representations made or suggested or it may mislead because it fails to reveal material facts or facts material either in the light of such representations or the possible consequence of use. Half truths are insufficient. Even when the labeling may be adequate, the container must be made and filled so as not to mislead the consumer. All drugs and devices must have adequate directions and warnings pertaining to the use, dosage and administration. The labels of habit-forming drugs and their chemical derivatives must bear the statement "Warning: May be habit forming." Drugs must bear the common official name. Deviations from the official standards are permitted but such deviations must be stated plainly on the label. Official drugs are expected to conform to the standards of the official compendiums in which they are recognized. Nonofficial drugs must give sufficient information to identify the active ingredients. They must conform to the strength, quality and purity they purport to possess. Deteriorating drugs are subject to regulations as issued by the Administrator. Of course, no drug may be adulterated. No drug may contain any constituent or any substance which may render it injurious to health or which may change the quality or strength of the drug, nor may any substance be substituted wholly or in part for a drug. Neither may the container be composed of a poisonous or deleterious substance. A drug may not contain a coal tar color unless it has been certified by the Food and Drug Administration as harmless and suitable for use.

Due consideration as outlined was given to the "Electreat Mechanical Heart." The label and labeling of this cure-all device made claims to treat a major portion of the diseases from and including dandruff to sweating feet. It was therefore held to be false and misleading.

Since ultimate enforcement of the Act is a function of the Federal courts, the next problem was how best to proceed. The law provides for three methods of procedure through the courts against adulterated or misbranded goods shipped in interstate commerce. These methods are seizure, criminal prosecution and injunction. Seizure is a process whereby, through appropriate legal action, the offending goods are brought into the jurisdiction of the court and thereby prevented from reaching the consumer. Criminal prosecution is a legal procedure against the person or firm responsible for the violation of the Act which is punishable by a maximum fine of $1,000 or one year in jail. If this violation is an attempt to defraud or is a second offense, the maximum punishment may be $10,000 and three years in jail. In some instances these procedures may be an unsatisfactory means of enforcement and the law provides that the enforcing agency may apply to the courts for a restricting order which denies the offending goods the channels of interstate commerce.

Again, after due deliberation, it was decided to recommend a seizure against the "Electreat Mechanical Heart." This seizure was instituted and brought to a successful conclusion.

And yet, here again, the problem is not so simple as it would appear to the physician. It is doubtful that any mere physician ever will fathom the intricate, devious workings of the legal mind. The fact that the "Electreat Mechanical Heart" was manufactured in Illinois and seized in Kansas City does not, it seems, constitute evidence that the gadget was ever in interstate commerce. Since the Federal Government has jurisdiction only over articles in interstate commerce, the Administration may be compelled to go to great lengths to prove such interstate movement of articles in litigation. In spite of the fact that the faradic coil has been known for years, it was necessary to employ a physicist to study this particular gadget in preparation for going into court to explain its detailed workings. A physiologist was employed to test this apparatus in order that he might tell the court what it would and would not accomplish, physiologically. Other experts were employed to tell the court such obvious facts as that it would not stop falling hair, it would not increase the flow of breast milk nor would it be of any value in treating constipation, diabetes, tuberculosis or infantile paralysis, to quote only a few of the claims. In fact, used

indiscriminately by the layman, the device might be harmful in some instances.

It also was necessary to spend an unbelievable number of man hours locating users who might have found the apparatus useless or harmful. Curiously, a few such users wanted information as to where another such device could be procured. Not until all this preparation was completed was the stage set for the final act of this drama.

By such handling of cure-all drugs and devices, the physicians of the United States have learned to depend on the Food and Drug Administration to insure the proper labeling, strength, quality, purity and reliability of the drugs they use and prescribe. The Administration will do everything in its power to continue to give them this service. However, this service never has been, nor can it ever be, one-sided. In the "Electreat Mechanical Heart" case, eight of the eleven Government witnesses were physicians. The Administration depended on these men to state the facts before the court in order that the court in turn could render a just decision.

Every practicing physician can participate in this enforcement work. He can help both to maintain and increase the efficiency of this Administration. He can do this, first, by reporting any and all cases of injury which have been caused by these cure-all drugs and devices. When the Administration accumulates sufficient of these facts to warrant legal action, these case reports will save a great deal of valuable time usually expended in discovering such injuries. Incidentally, the physician may find more such injuries and solve some of his most perplexing cases if he inaugurates an inflexible routine of asking all patients what drugs or devices they have been using.

Case reports should include a complete detailed history, the original or a copy of the labeling and information as to just how the article was used. This is important in the event a case is presented in court since the law requires that evidence must be submitted showing whether or not the article was used according to the directions.

The physician can help further by continuing his generous cooperation when the Administration needs his services as an expert witness. It is by such active participation that the Administration has remedied in the past and can ameliorate in the future, in no small measure, its deficiencies in manpower and facilities in the approach toward that Utopia of a market free from false, misleading, useless, fraudulent and dangerous drugs and devices and also can effect a material elimination of the illegitimate, wasteful portion of the cost of medical care.

U. S. Food and Drug Administration.

It has been estimated that at 3 years of age 85 per cent of the nation's youngsters suffer from dental decay and that a few years later this may reach 97 per cent, James N. Miller, Washington, D. C., points out in a recent issue of *Hygeia, The Health Magazine.*

INFANTILE PARALYSIS IN MISSOURI

ARCHER O'REILLY, M.D.

ST. LOUIS

In 1917 I read a paper on anterior poliomyelitis, the opening paragraphs of which follow:

"The extensive and serious epidemic of infantile paralysis in New York and the eastern states during the last summer, with its very widespread newspaper publicity, has made this disease of especial interest, not only to the orthopedist and the pediatrician, but also to the general practitioner, and has aroused the fear of almost all laymen."

"Anterior poliomyelitis is not a new disease. Its resulting deformities have been recognized in an Egyptian mummy. It was first described by Heine in 1840 and the first epidemic on record was in a parish of Louisiana in 1841. Since then, the disease has spread throughout Europe and America. Since 1910, cases and epidemics have been reported from almost all parts of the country, culminating in the serious epidemic of last summer (1916). The general belief is that there will be a fresh outbreak of the disease this year and that it will probably extend westward so that its effects will be felt in this section of the country."

These words are as true today as they were in 1917. Today there is much more publicity, newspaper and radio, and the disease has spread westward and everyone is interested in poliomyelitis.

In 1912 (fig. 1) infantile paralysis was confined mostly to the northeastern states; there was very little west of the Mississippi River. This may not be accurate because some of the states did not report poliomyelitis. In the epidemic year of 1916 (fig. 2) this picture had changed and there were cases in almost every state of the union, but with the great majority in the northeastern states. Reports from the United States Public Health Service were studied from 1931 to 1940, which gives the prevalence of poliomyelitis for the last ten years. Figures for 1941 are not yet available. Some statistics from my earlier paper were supplied at that time by the United States Public Health Service so they are all as nearly accurate as possible (table 1).

One of the biggest epidemics occurred in 1916

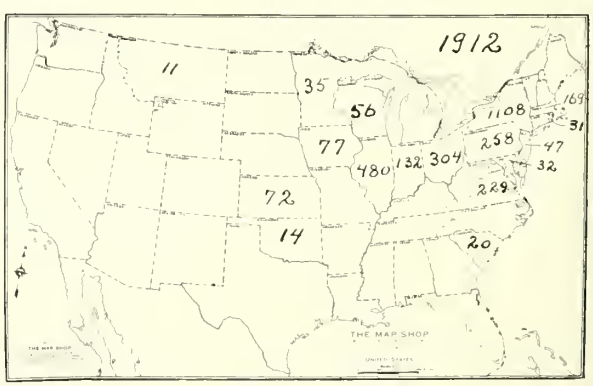


Fig. 1

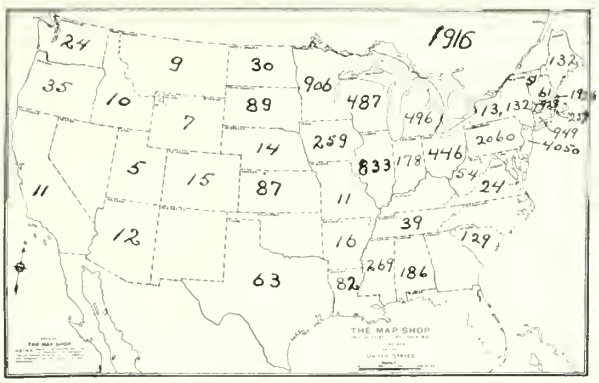


Fig. 2

when there were 27,693 cases in the United States. There were 13,132 cases in New York state alone.

There was a fairly large epidemic in 1931 (table 2) with 15,780 cases. These were more widely distributed but were mainly in the northern part of the country. In 1932, there was a sharp decline followed by a gradual rise until 1935, when there were 10,839 cases. In that year the distribution had shifted definitely to the west and south.

The map of the United States (fig. 3) shows the trend of cases for the last five years. Each state is divided into five areas, with the date, and the incidence is based on one case per 100,000 of population.

The white areas represent two or less cases per 100,000; the dots from two to four, dashes four to six, lines six to ten, and the black areas ten and over.

The map shows one or two points of interest. In the last five years there seems to have been a definite decrease of the more severe epidemics in the eastern states and many more of them in the western and southern states. It also will be noted that in epidemic years infantile paralysis is prevalent in almost all the country.

Another interesting thing is that epidemics seem

Table 1. *Infantile Paralysis in the United States—1912 and 1916; 1931 to 1940*

1912	1916	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
2,279	27,693	15,780	3,778	4,983	7,517	10,839	4,523	9,511	1,705	7,343	9,799

Table 2. *Cases of Infantile Paralysis in the United States, by Regions (U. S. Public Health Service)*

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
New Eng.	3,035	192	583	134	2,451	126	673	76	153	102
Mid. Atlant.	7,575	1,806	2,027	419	3,602	352	1,132	240	1,713	437
E. N. Cent.	2,846	480	768	941	1,062	1,283	2,172	275	1,410	3,644
W. N. Cent.	1,221	311	662	345	295	367	1,497	169	942	2,353
So. Atlant.	394	327	294	354	1,693	473	531	306	896	1,085
E. So. Cent.	164	176	204	264	501	1,003	688	245	276	368
W. So. Cent.	33	139	44	215	223	287	1,585	178	366	502
Mountain	118	51	105	686	87	126	393	66	496	361
Pacific	394	296	296	4,159	925	506	840	150	1,091	947
Total	15,780	3,778	4,983	7,517	10,839	4,523	9,511	1,705	7,343	9,799

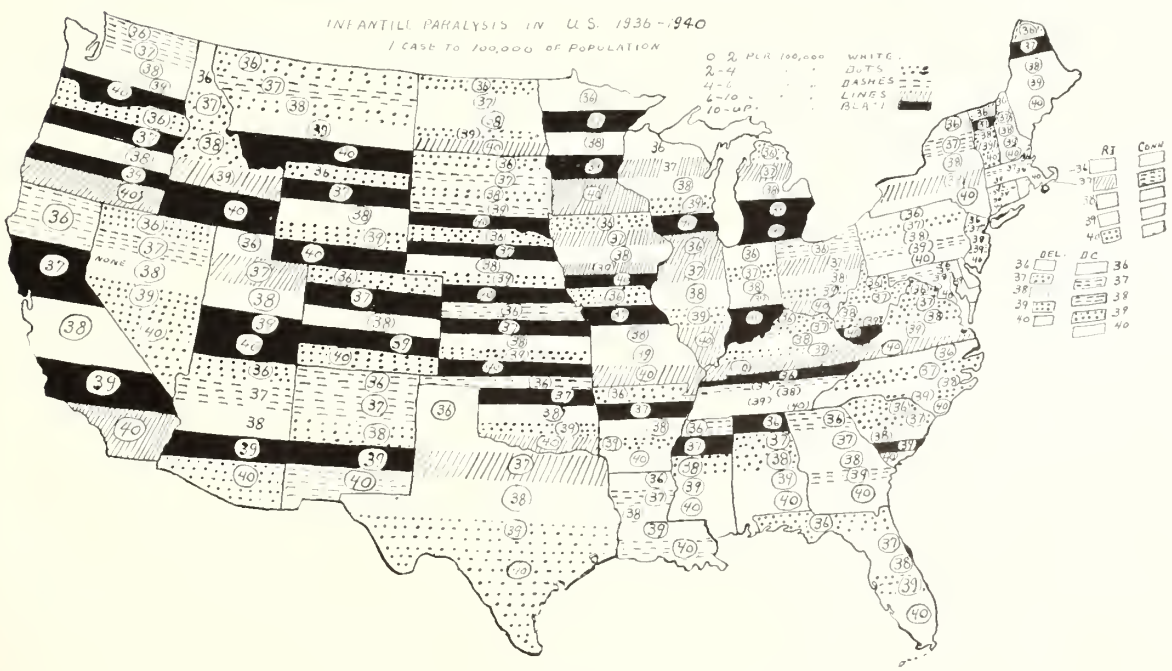


Fig. 3

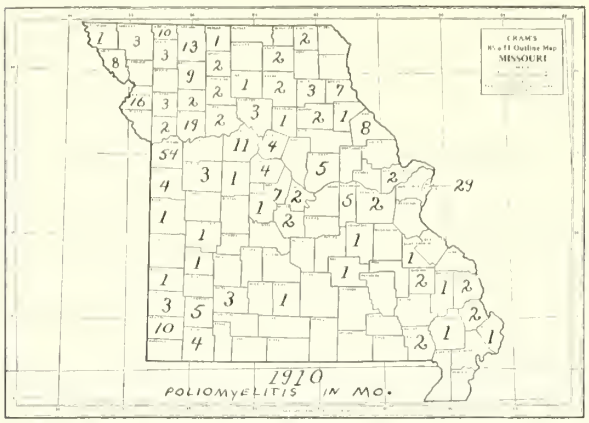


Fig. 4

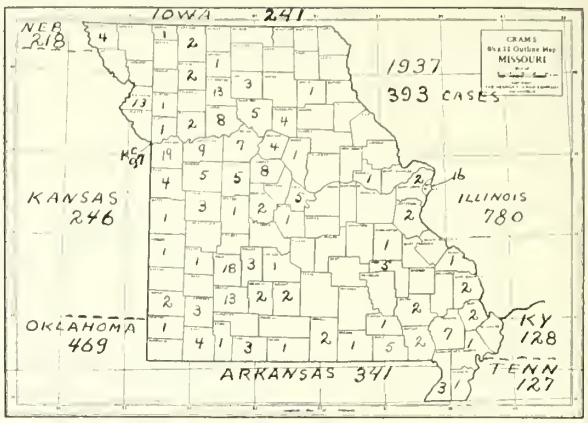


Fig. 6

to come in cycles. After an epidemic there is usually a sharp decline in the number of cases, then a gradual increase for a year or two and then another epidemic. In the last five years, there has been a decrease of 10,016 cases; from 1931 to 1935 there were 42,897 and from 1936 to 1940 there were 32,881 cases. This may be due to the fact that an immunity to poliomyelitis is being established.

In 1910, I made a study of infantile paralysis in Missouri. There were no official statistics at that time and a questionnaire was sent to all physicians in the state. Considerable care was taken in arriving at the number of cases given. Reports of 309 cases were collected in 1910 (fig. 4). At that time infantile paralysis was scattered throughout the state but it was more prevalent north of the Missouri River and along the western border of the state. It is interesting to compare this with later distribution.

The first report made to the United States Public Health Service was apparently in 1916. In that year there were eleven cases. From 1931 to 1935 the incidence of infantile paralysis was low—eighty-three cases in 1931, twenty in 1932, forty in 1933, thirty-seven in 1934 and fifty-two in 1935. In 1936 there was a sharp increase to 105 and in 1937 it jumped to 393 cases. In 1938 and 1939 there were twenty-six and twenty-nine cases respectively. In 1940 there were 314 cases.

It is interesting to study the distribution of these cases (fig. 5). In 1936, most of the cases were in the centrally located counties. There were thirty-three cases in St. Louis and eight in St. Louis County. The cases in adjoining states are shown on the border of the map.

In 1937 (fig. 6) there were 393 cases or 10.4 per 100,000; and there was a definite shift to the west and south. St. Louis had only eighteen cases in the city and county, Kansas City and Jackson County 116 cases. Some of the cases reported from Kansas City may have come from adjoining states.

In 1938 (fig. 7) there was the expected sharp drop to only twenty-six cases. Most of these were toward the center of the state and a number of new counties were involved. St. Louis and St. Louis County had eight cases and there were only four in Jackson County and Kansas City.

In 1939 (fig. 8) the cases were scattered throughout the state. Except for St. Louis and Kansas City the cases were all in counties in which there had been none the year before. Kansas City showed an increase of four cases and St. Louis had one case less.

In 1940 (fig. 9) there was again an epidemic of

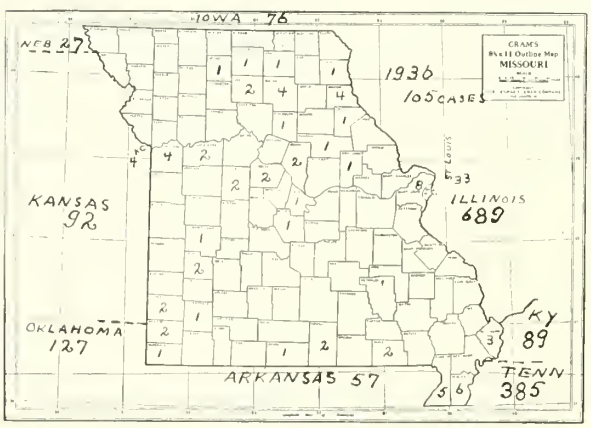


Fig. 5

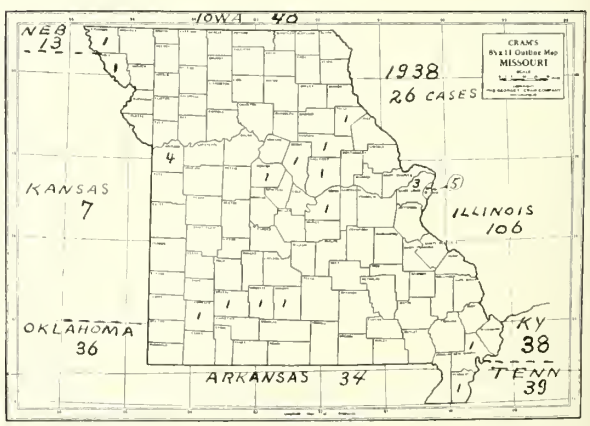


Fig. 7

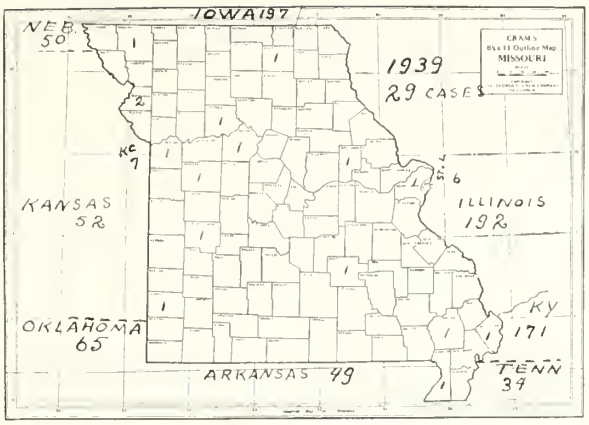


Fig. 8

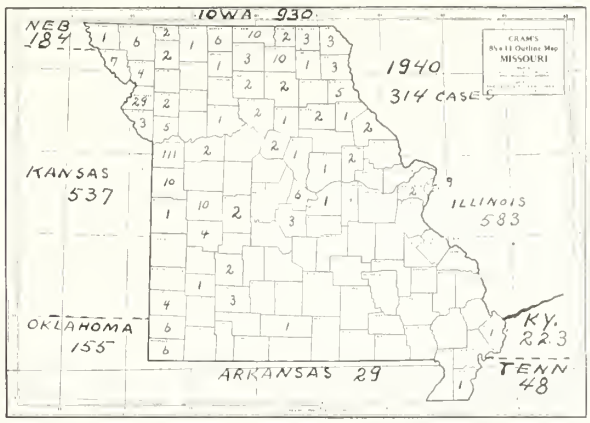


Fig. 9

314 cases, or 8.3 per 100,000. This was slightly less severe than in 1937. Almost all the northern part of the state was involved with a fringe along the western border and a few scattered counties in the center. Kansas City and Jackson County had 111 cases with only eleven in St. Louis and St. Louis County. There were epidemics in Iowa, Nebraska, Kansas, Oklahoma and Kentucky and the counties bordering these states were the ones most affected. It would seem almost that the disease had spread from the adjoining states into Missouri. It is also interesting to note that there have always been some cases in counties along the Missouri River.

I can not draw any conclusions from these maps but think it may be significant that in four out of the last five years there have been very few cases in the eastern part of the state. St. Louis, for some reason, has been particularly free from infantile paralysis.

As a result of this apparent immunity in the eastern part of the state, physicians in St. Louis may think that there is comparatively little infantile paralysis in the state. As a matter of fact, when based on the proportion of cases to population, Missouri has had about the same rate of poliomyelitis as the other states. It is even a little higher than some.

So far St. Louis has been fortunate in not having had an epidemic, but one may come at any time and physicians must always be prepared to meet this emergency.

This paper has been written mainly to show the distribution and prevalence of infantile paralysis in Missouri. I feel that a few words on the diagnosis and early treatment may be of interest.

There are five types of infantile paralysis:

1. The abortive type, which can not be diagnosed except by elaborate experimental studies.
2. The nonparalytic type.
3. The bulbar forms. This is the ordinary paralytic type.
4. The encephalitic type—rare.
5. The ataxic type—very rare.

Occasionally mixed types occur.

When one thinks of infantile paralysis, one thinks of the paralytic type although there are also the abortive and nonparalytic ones, which are probably in the majority. These do not cause any serious after-effects and do give an immunity. Often they are not diagnosed.

The paralytic type may cause serious crippling and if it is neglected there also may be extreme deformity. The bulbar form may affect the muscles of respiration and this is the usual cause of death. It is with bulbar involvement that the respirator is used.

The paralytic stage of poliomyelitis is an orthopedic condition and requires, of course, special orthopedic treatment. The preparalytic stage is probably as important, or even more so, and is the stage seen by all medical men.

Infantile paralysis is more prevalent in the fall. It begins in July and August, reaches a peak in September and October and then gradually declines. It is during this period that all should be alert and on the lookout for signs of the disease.

The incubation period is from five to fourteen days. The symptoms are those of an acute infectious disease with fever, vomiting, constipation, or diarrhea, and prostration. The most suggestive symptoms are stiffness and pain in the neck and spine and also muscle and joint pains. It is difficult to make a diagnosis without a lumbar puncture and a cell count. There may be a slight increase in pressure. The fluid is clear with an increase of cells of from 25 to 1,000, usually about 100.

The treatment of acute cases of poliomyelitis of all types is absolute rest, in bed, with support for the affected parts. This not only prevents the development of deformity but also relieves pain and makes the patient more comfortable. Treatment should be started immediately the diagnosis is made.

There is still much controversy over the use of convalescent serum. Many believe that it is of slight or no value. All seem to agree that it does little good if administered after paralysis has developed. Because of the publicity, many patients want it used. If it is to be of any value it must, then, be

given before paralysis appears, so an early diagnosis is imperative.

The use of chemicals as prophylactic agents in coating the nasal mucous membrane does not seem to have been successful up to the present. There is now a controversy over the portal of entry. Is it through the nose or the gastrointestinal tract? If it is the latter, there would be no point in attacking the nasal mucous membrane.

In the bulbar type, when the muscles of respiration are paralyzed, death often may be prevented by the use of a respirator. This is supposed to be a temporary treatment until there has been sufficient recovery of these muscles to resume normal function. The National Foundation for Infantile Paralysis has just published a pamphlet giving the location and owners of all respirators in the country. There are five in St. Louis. They have not, so far, been used to capacity.

Many things about infantile paralysis are not known. There are still many questions to be answered. These questions are hard to answer because it has been difficult to study the disease experimentally or make immunologic tests in large numbers. Up to the present time the only animal available for experimentation has been the monkey. These are too scarce and expensive for widespread investigations. Knowledge of infantile paralysis will be greatly increased and there will be some hope of its prevention if a common laboratory animal capable of infection can be found or if some laboratory method that will help in its study can be devised.

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IMPORTANCE OF GENERAL PRACTITIONER

The general practitioner is again taking his rightful place in the practice of medicine—and with a background of study and training that justifies the highest confidence in his ability, John Joseph Nutt, M.D., New York, declares in *Hygeia, The Health Magazine* for November, asserting that "if specialists would accept no patients except those referred by family physicians it would benefit the patient, the family physician and the specialist.

"The patient would, of necessity, have a physician who would be friend and adviser in all things pertaining to health. The prevention of illness has become a large part of the practice of medicine, and surely this is work for the family physician, who knows his patient from top to toe. He also should be the judge of the good or evil of treatments, drugs, foods, exercise and climates. . . . No matter where he lives, the most recent advances in science are available to the family doctor through medical journals, circulating medical libraries and medical societies. By consulting him in small matters his patients may often avoid serious consequences. . . . The specialist would not be called on to treat conditions which the family physician can treat exactly as well; he would be consulted only for those conditions which come within his special field. The final result would be the thinning-out of the ranks of the specialists—only the really fit surviving—and the return of the family physician to his own. . . ."

MODERN CONCEPTS IN THE TREATMENT OF BURNS

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Burns are among the most distressing cases which the physician is called upon to treat. No type of human injury is more to be dreaded than burns or scalds. The pain associated with such injuries, the high mortality rates, the long and often permanent periods of disability and the frequent disfigurement more than justify this fear. Unfortunately the physician who treats the acute injury is too often heedless of the end-result which he may not be called upon to see or treat.

Burns account for about six thousand deaths each year in this country and rank second in fatal home accidents. Children are by far the most frequent victims of fatal burns and women second.[1]

It is reported that 60 per cent of the casualties at Pearl Harbor were from burns. The number of burn cases occurring in the Navy has, for obvious reasons, far exceeded the number occurring in the Army.

PHYSIOLOGIC CONCEPTS

If one is to care adequately for a severely burned patient he must understand the many physiologic changes which take place in the body after such an accident. It has been shown[2,3] that when one sixth of the body surface suffers a burn the local edema fluid is equal to about 70 per cent of the total blood volume and that the composition of the local edema fluid closely resembles that of blood plasma. Trusler, Egbert, Williams and others[2,3,4,5,6] have demonstrated that subsequent to a burn the capillaries in the injured area dilate, the circulation stagnates and blood plasma escapes through the injured capillaries into the tissue spaces. Also, the damaged tissue releases "H" like substances[7] which act to damage capillaries throughout the body and increase their permeability to proteins. All of this results in a loss of plasma protein from the circulation even if all of the fluid and plasma are not lost externally.

The loss of plasma protein in severe burn cases has been shown to occur rapidly at first and then more slowly for many hours.[8,9,10] As much as 50 per cent of the plasma loss may occur within the first hour. However, it must not be forgotten that this loss of plasma has been shown to continue until from the thirty-first to the fortieth hour.

The loss of plasma results in a low blood volume followed by decreased cardiac output, inadequate circulation and asphyxia of tissue. This factor is the principal cause of shock in the burned patient.

This loss of blood plasma also accounts for the hemoconcentration, high specific gravity of the blood and the low blood sodium chloride values (as well as the increase in plasma potassium, mag-

nesium and bilirubin) seen in these cases. The red cell count may increase to 8,000,000 or more and the hemoglobin may not infrequently rise to 180 per cent. The hematocrit reading may rise to 70 or higher.

The nonprotein nitrogen level of the blood rises not only as a result of the hemoconcentration but also as a result of actual nitrogen retention. This retention probably is due largely to the low blood pressure and the diminished blood volume during the initial stages of the burn, but it may also be the result of actual kidney damage due to absorption of bacterial toxins or disturbed body metabolism.

As a result of the plasma protein loss the colloid osmotic pressure of the blood decreases and tissue edema may occur because the osmotic pressure is reduced below the point at which electrolytes and water can be held within the blood vessels. The escape of fluid from the capillaries may become generalized extending to the liver, lungs, other parenchymatous organs and to all parts of the body. It is not uncommon to find the total protein content in severely burned cases reduced below the edema level, i.e., 4 gms. per cent (normal 6 to 8 gms. per cent). Protein also is lost in many of these cases in the formation of pus and through the glomeruli of the kidneys into the urine.

Another important change accompanying severe burns, as pointed out by Bardeen in 1898[11] and more recently by Wilson and coworkers[12] and McClure,[13] is hepatitis or, more exactly, a central necrosis of the liver lobules. In a fairly large series of fatal burn cases dying within the first three days with toxemia like symptoms not explained either by shock or sepsis, Wilson found a characteristic hepatitis at autopsy. Also Wolff and coworkers,[14] in three severely burned patients, found depressed liver function by several different tests.

Another disturbance in the critically burned patient is an increase in plasma potassium, as pointed out by Scudder[15] and others, thought to be due partly to adrenal damage from the burns and partly to cellular damage in the burned areas. Weiskolten[16] in 1917 observed adrenal hemorrhages in fatal burn cases similar to those produced by diphtheria toxin.

The adrenal cortical hormone maintains a normal equilibrium between plasma sodium and potassium as well as normal hydration of the blood. In adrenal cortical insufficiency, plasma potassium mounts and there is a loss of sodium and water through the kidneys. Doubtless on this rationale, Scudder[15] advocates, in severe burns, hypertonic saline and cortical extract.

If infection occurs with its resulting toxemia, a further drain is made upon the plasma protein and homeostatic mechanisms of the body.

TREATMENT

It goes without saying that time, place and available materials may alter the best laid plans of man. This is especially true in the case of a burn. Fire is universal but, unfortunately as yet, medical care, materials and transportation are not.

The three considerations which should guide one's choice of treatment for a burned patient are the comfort of the patient, the immediate mortality and the permanent disability which may follow. It has been well established that there are three distinct phases in the patient's reaction to an extensive burn. The first phase is marked by the initial shock caused by pain and diminution of blood volume secondary to loss of plasma. The British have pointed out vividly the part psychic trauma plays in the production of shock because in many cases which were treated the degree of shock was out of proportion to the degree or extent of the burn. The second phase becomes apparent at the end of the first twenty-four to forty-eight hours and, as Aldrich[17] has shown, is associated with the appearance of streptococci in cultures from the burned areas. This phase is marked by a rising temperature and evidence of severe toxemia. The last phase usually begins about the seventh day and is characterized by a temperature indicative of sepsis secondary to the accumulation of pus beneath eschars or necrotic tissue.

Glover,[18] in reviewing a series of 310 cases of burns, observed no fatalities after the fifth day. Thus the extent of the burn and the proper early treatment are significant factors in determining the mortality associated with burns.

Estimates have placed the incidence of burn deaths which are due to shock at from 60 to 75 per cent of all burn deaths.[19] Atkins[20] in discussing the burned patients evacuated from Dunkirk states, "Secondary shock is the most serious factor in burns and is responsible for 60 per cent of the deaths occurring in this condition." This sweeping statement must not be taken too literally because of the adverse factors in operation during this evacuation.

Death from a burn results either from the initial shock as a result of changes in blood volume, blood concentration and blood chemistry or as a result of toxemia due to absorption of bacterial toxins and possible products of tissue destruction in the affected areas. The predominant role in any case may be played by the circulation, kidneys, liver or adrenal cortex. Rarely, Curling's ulcer of the duodenum occurs, a cause of fatal hemorrhage or perforation quite resistant to treatment. The "modus operandi" in the production of Curling's ulcer is unknown.

After the initial shock has been controlled one must be ever alert in regard to the early signs of toxemia which commence in from twelve to twenty-four hours after the injury and reach their height in about seventy-two hours. The signs are a steadily mounting fever, hiccoughing, nausea, vomiting, stupor and often delirium.

In any burned patient, the first consideration should be the treatment of the pain and the associated shock. We have found intravenous morphine of great value in quickly alleviating the pain. Mor-

phine (gr. 1/6 to 1/4) dissolved in 2 cc. of sterile distilled water is injected, intravenously, slowly until the patient experiences relief. At that point the needle is withdrawn from the vein and the remaining solution discarded. Since shock depends upon inadequate circulation, the condition of the patient and the therapy necessary must be judged by the blood flow. The blood pressure is only one guide. A good color, warm extremities and a full pulse are significant observations in determining the state of the patient in shock. A gray cyanosis of the lips, cheeks and ears denotes failure of the peripheral circulation. The blood pressure can be raised by injecting adrenalin or ephedrine but, due to the vasoconstriction produced, blood flow to the tissues will be reduced further. Saline and hypertonic glucose are only of temporary value as these solutions soon pass from the circulating blood into the tissues. The logical therapy is to replace the plasma which has been lost, thereby replacing the blood volume to normal or near normal. Plasma transfusions are ideal for this and commercial preparations are now available to all. Another advantage of plasma is that no typing or cross agglutination is necessary. The pooling of the plasma by the commercial firms has resulted in a suppression of the agglutinins, in spite of the fact that the contributing plasma contained agglutinins in high titer. Plasma can be given in the field, in the ambulance or in the hospital. It can be given intravenously, intramuscularly or subcutaneously. The rate of absorption by the latter two methods approaches that of normal saline. We have found that available veins are sometimes at a premium in extensively burned cases and that thrombosis of superficial veins is not unusual. Generally from 250 to 500 cc. of plasma will be sufficient to bring the patient out of shock. If plasma is not available one may use blood transfusion (500 to 1,000 cc.) or acacia (500 cc.). One should be cognizant of the fact that more red blood cells will add to the hemoconcentration and that acacia may cause liver damage. Hypertonic glucose and normal saline are of value in restoring the blood electrolytes. Hartman's and Ringer's solutions are ideal. The hypertonic glucose helps temporarily to increase the blood volume and to prevent hepatic damage.

The adequate and continued control of anoxia is important in any type of shock. The B.L.B. mask is ideal for the administration of oxygen in high concentration and should be used in all cases of severe burns, both therapeutically and prophylactically.

It has been shown by Rhoads[21] that synthetic adrenal cortex extract (desoxycorticosterone acetate) is of some value in restoring and maintaining capillary tone and regulating the fluid shift which occurs in burned patients. The dosage of desoxycorticosterone acetate is 2 cc. injected intramuscularly every four hours. However, at present there is much confusion as to just which substance in the adrenal cortex extract is the one of value. As Kendall[22] has pointed out, there are several substances present in the adrenal cortex with varying and at times opposing action. Before this form of therapy can be advised for routine use, further experimental work is necessary.

Following the patient's recovery from shock a hemoglobin, red blood count, hematocrit and determination of the specific gravity of the blood can be made, and more plasma given if necessary. An excellent and simple rule is to give 100 cc. of plasma for each degree the hematocrit reading is above normal or 45.[23] A simple method of following the hemoconcentration of the blood is by determining its specific gravity as advocated by Scudder.[15] For the severely burned patient a continuous intravenous drip transfusion is advocated by Rhoads, Wolff and Lee.[24] The rate of flow should be adjusted so as to maintain the peripheral circulation as mentioned before in this article. A rough estimate of the blood flow may be obtained from observation of the ease with which blood can be obtained by a needle prick. Following the initial plasma transfusion, small repeated plasma transfusions are of value since, as was stated previously, plasma continues to be lost up to the fortieth hour after a burn.

After the patient has recovered from his shock and his condition is satisfactory, the burned areas are treated. From a practical standpoint, it is impossible to determine accurately the degree or depth of a burn at the onset of treatment. All burns should be considered severe until proved otherwise. We use intravenous pentothal sodium or evipal anesthesia. The burned areas are cleaned thoroughly, using sterile materials, with white bar soap and cotton pledgets. A brush is necessary to remove dirt or foreign matter. Ether or Fantus ether soap may be necessary if oil or grease has been applied previously to the burned area. Unfortunately, the basic principals of surgery are ignored many times in the treatment of a burn. A burn is one of the largest surgical wounds, yet, too often, the attendants neglect to wear caps, gowns or masks or to use even routine aseptic precautions. We are confident that many burn cases become infected in the hospital because of the lack of sterile precautions. This has been pointed out by Aldrich[17] who found that repeated cultures from the burned areas and from the fluid under the blebs revealed few or no organisms for the first twelve hours. In other words these areas were practically sterile. However, after a twelve hour period repeated cultures in 100 per cent of the severely burned patients revealed beta hemolytic or gamma streptococci.

After the burned areas are cleaned satisfactorily and a dirty wound made into a clean one, one of several preparations may be applied locally. The purpose of the local treatment is to convert an open wound into a closed one and to prevent as much as possible the further loss of plasma from the wound.

To apply any medicament to a burned area before the area is adequately cleaned is, in principal, analogous to the careful suturing of a contaminated wound. If a burn obviously is contami-

nated grossly or is over eight hours old when first seen, the care is that of an ordinary infected surgical wound. Massive boric or saline dressings along with Dakin's solution, azochloramid or possibly one of the sulfonamide group of drugs will help to hasten the removal of infection. After the infection has been cleared up the wound may be closed secondarily with tannic acid, gentian violet or skin grafts as deemed advisable.

The use of tannic acid,[25] tannic acid and silver nitrate,[26] gentian violet,[27] triple dye (crystal violet, acriflavine and brilliant green),[28] gentian violet and silver nitrate,[29] sulfadiazene spray[30] and foille[31,32,33] attest to the fact that no one preparation has found complete international recognition. If tannic acid or one of the dyes is used it is essential that the solution be sprayed on until a satisfactory eschar is formed over the burned area.

It has been our practice to use tannic acid jelly for burns about the face, foille or tannic acid jelly for burns about the joints and hands, 1 per cent gentian violet for burns about the anus and genitalia and alternate applications of 5 per cent aqueous tannic acid and 10 per cent silver nitrate solutions for burns over the rest of the body. Excellent results are obtained with the use of gentian violet; however, it stains everything with which it comes in contact.

The British have found that painting of the edges of the tanned eschar with gentian violet or brilliant green has cut down the incidence of infection under the eschar.

Owens[34] advocates straight surgical principals in the treatment of burns, cleaning the burned area thoroughly but gently using sterile technic and converting the open wound into a closed one by the use of dressings and pressure. He applies a single layer of fine mesh gauze over the burn, then a thick layer of gauze followed by an abundance of mechanic's waste. Cellophane is applied over this and the dressing held in place with bandages. The dressing is not disturbed for two weeks. Then the dressing is changed, the wound watched for about six days and skin grafted if necessary.

We feel strongly that burned cases should not be put in wards with other infected cases. A light cradle is put over the patient and the temperature should be kept at from 85 to 90 F. A thermometer is essential because too little or too much heat may be used to the detriment of the patient. Sterile bed linens, gowns and good nursing care are essential. Burns about the face, genitalia and anus tax the ingenuity and patience of both nurse and surgeon. A prophylactic dose of tetanus and gas antitoxin should be given.

Although foille is not at present accepted by the Council on Pharmacy and Chemistry of the American Medical Association,[35] we have used it at times during the last three years with good results in burns about joints, the hands in particular. During the last few months encouraging reports have appeared in the literature in regard to the use of a new sulfhydryl solution[36,37] for the treatment of burns, especially of the eyes, about the face and hands. The application of the sulfhydryl solution is accompanied by considerable pain.

It must be emphasized that the treatment of a burned patient and the surgeon's responsibility to the patient do not cease after the shock has been controlled and the burned areas covered with some medicament. In fact, the care of the patient has just begun if the mortality, morbidity and permanent disability are to be kept at a minimum. Too often, one sees the brilliant early care of a burned case nullified because of poor aftercare.

Procrastination has no place in the treatment of a burned case because often while the surgeon is procrastinating the patient's condition is growing steadily worse. Hemoglobin, red blood cell, specific gravity of the blood and hematocrit determinations must be made at frequent intervals to guard against hemoconcentration. The blood urea should be watched lest the patient develop uremic manifestations. A check on the blood chlorides serves to guide one in regard to the amount of salt needed by the patient. Fifteen grams of sodium chloride a day are usually adequate for a patient unless the patient is vomiting or otherwise losing chlorides in abnormal amounts. However, often one sees a patient being given from 45 to 50 gms. of sodium chloride a day with edema as a result. The fluid balance is best followed by charting the intake of fluids and the output of urine. The patient should have a daily output of around 1,000 cc. of urine of moderate or low specific gravity if a positive fluid balance is to be maintained. The urine should be examined daily for albumin, the presence of which denotes toxicity with resulting increased permeability of the glomeruli to protein. A total blood protein and serum albumin globulin ratio determination will guide one in regard to the further need for plasma transfusions. If anemia develops, iron and possibly liver extract will be of value in addition to a blood transfusion. The patient should be given a high calorie, high protein and high vitamin diet in order to replace the lost plasma, protect the liver and promote healing and rapid convalescence.

Since approximately two thirds of the body sulphur is in the skin, it is logical to assume that an additional amount of sulphur in the diet of a burned case may prove beneficial. Eggs will supply this.

Constant vigilance must be kept in regard to the early detection of an accumulation of pus beneath the eschar. If a collection does develop, the eschar must be trimmed away to allow for adequate drainage. The area can then be treated with Dakin's solution, azochloramid, normal saline or sulfathiazole powder.

If granulation tissue becomes excessive, sea sponges bound on tightly will help control the exuberant granulations. If sepsis develops, sulfathiazole, grs. 15 every four hours, for a few days generally will help control it. Gordon[38] advocates the prophylactic use of a full course of sulfonamide therapy in all burn cases. In view of the physiologic changes which have been considered in regard to

a burned case, the wisdom of this procedure is not, as yet, apparent.

We are skeptical in regard to the value of splints in the prevention of contractures and feel that early skin grafting (fourteen to twenty days after the burn) is the only adequate prophylactic measure. Early skin grafting is logical because it reduces the size of the lesion, covers an area where the ingrowth of epithelium is indolent, stimulates the spread of epithelium from the periphery of the burn, prevents contractures and furthers the well-being of the patient. The Padgetts[39] dermatome is ideal for the obtaining of most of these skin grafts.

SUMMARY

1. To care adequately for the burned patient one must be cognizant of the many physiologic alterations which take place as the result of burns.

2. The early treatment concerns itself with shock, plasma replacement, liver protection, the prevention of possible adrenal exhaustion and increased plasma potassium.

3. Local therapy deals with the conversion of an open, often contaminated, surgical wound into a closed, sterile one. Sepsis and disfiguring contractures should be prevented.

4. The aftercare of the burned patient is emphasized in respect to nursing care, diet, blood chemistry, the sulfonamides and early skin grafting.

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HOW SURGEON HELPED SAVE HOSPITAL

How a British surgeon helped save a hospital that had been bombed is described in *The Journal of the American Medical Association* for October 24 by the regular London correspondent of *The Journal* who reports:

"High explosive and incendiary bombs fell on a hospital, setting it on fire. The house surgeon, Dr. Philip Baxter, wearing a dressing gown over his pajamas, climbed a fall pipe to the blazing roof. Then he used the girdle of his dressing gown as a rope to hoist up buckets of water, which were tied on by helpers below. He got the blaze under control. In leaping from the roof to a lower one he injured an ankle but went to the operating theater to attend the victims of the raid. When there a message came that an elderly woman was trapped under wreckage in another part of the town and that medical help was urgently needed. He went and had to crawl down a tunnel in the debris to administer morphine. He waited until she was extricated and sent to the hospital. He then hobbled back but was in great pain. While on his way a policeman lent his bicycle. Cycling was no less painful but was quicker. On arrival he returned to the operating theater and continued his work. Only after he had been on duty for several hours did his own injury receive attention. . . ."

CASE REPORTS OF THE BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., ROBERT A. MOORE, M.D., Editors

CASE 3

PRESENTATION OF CASE

The patient was a 56 year old white, married farmer, admitted to the Barnes Hospital on July 20, 1942. He died on August 29, 1942.

Chief Complaint.—Cough, pain in right chest, and fever were complaints.

Family History.—Mother-in-law who lived in the same house for five or six years died from tuberculosis. The patient's wife also was thought to have had tuberculosis.

Past History.—The patient had a severe attack of influenza fifteen or twenty years previously following which he was told that he had "weak lungs." Except for this illness his general health had been excellent.

Present Illness.—Ever since the attack of influenza the patient had had a chronic cough productive of mucopurulent sputum. Almost every spring he had an exacerbation of the cough. With these attacks he had fever and would remain in bed for two or three weeks. His sputum was examined on at least three occasions and no tubercle bacilli were found. The patient remained active until five weeks before admission at which time he suffered an attack of "flu." His appetite became poor but he was not ill enough to go to bed until two weeks later when he developed a severe pain in his right lower chest made worse by inspiration. The cough increased and was productive of purulent sputum which was sometimes blood-streaked. The temperature was 102.8 F. A physician was called and sulfadiazine was administered for three days. The temperature fell and the drug was discontinued because of anorexia. Fever promptly reappeared and sulfadiazine was resumed but again discontinued because of anorexia. The chest pain largely subsided but the cough which produced shortness of breath continued and there was a daily temperature elevation to from 102 to 103 F. Hospitalization was advised and the patient was admitted to the Barnes Hospital on July 20, 1942.

Physical Examination.—Temperature was 104 F., pulse 110, respiration 28, blood pressure 110/70. The patient was a well developed, poorly nourished white man who appeared chronically ill. There was evidence of recent weight loss. During the examination he had a severe paroxysmal cough productive of purulent sputum without odor. Examination of the head revealed some constriction of the pupils (morphia). Many teeth were absent; the remainder showed much dental repair. Examination showed the neck was normal. The thorax was symmetrical with limited expansion on the right. Percussion was impaired at the right base posteriorly, in the axilla and anteriorly. Over this area the breath sounds were diminished as were the whispered and spoken voice sounds. No râles were heard. The heart was normal. The abdomen was difficult to examine because of muscle tension but no abnormalities were detected. The remainder of the examination was noncontributory.

Laboratory Findings.—Red blood cells were 4,020,000; Hb. 11.3; white blood cells 17,350; differential count was "stab" forms 8 per cent and segmented neutrophils 83 per cent. The urine was normal. Blood sugar was 96 mg. per cent. Nonprotein nitrogen was 20 mg. per cent. Kahn reaction was negative. Repeated sputum examinations showed no acid-fast organisms. In a sputum culture pneumococcus predominated. Electrocardiogram was normal.

Fluoroscopic Examination.—The lungs showed increased density in the lower third of the right chest obscuring the right costophrenic angle and extending upward from 1 to 2 cm. above the nipple line.

Thoracentesis.—There were obtained 250 cc. of thin, slightly cloudy, greenish-amber fluid. Specific gravity was 1.015 and the cell count 68,000; an occasional coccus was seen on the smear of fluid but cultures were sterile. A second thoracentesis was performed a few days later and 300 cc. of fluid were removed.

Roentgen Ray Examination.—On July 23 roentgenrays of the chest with the patient lying on the left side revealed a straight line well seen in the subdiaphragmatic region. Above this was a collection of air and the appearance was that of a subphrenic abscess.

Bronchoscopic Examination.—A bronchoscopy was done on July 29. The examination revealed much thick yellowish green pus in the trachea. The right upper lobe was normal. There was constriction of the divisions of the right lower lobe bronchus and pus was coming from these divisions. The tissue was a little hyperplastic but there was no mass from which a biopsy could be taken. No abscess cavity was located. Lipiodol was introduced and the roentgen ray film revealed good filling of the trachea, of the right main bronchus and of the right upper lobe bronchus. Only the more proximal divisions of the lower and middle lobe bronchi were unfilled. These divisions were irregular and slightly dilated. Roentgen ray diagnosis: Non-filling of right middle and right lower lobe bronchi. (?) Carcinoma of the lung.

Pathologic report.—On August 20, the pathologic examination of the sediment from the pleural fluid indicated that the fluid contained many polyhedral-shaped cells which occurred in groups suggesting rosettes or duct-like structures. These cells, the nuceli of which varied considerably in size and structure, were undoubtedly of epithelial origin and were thought to indicate the presence of a ma-

lignant process. Sputum culture revealed yeast-like organisms on special media.

Course in Hospital.—The patient's condition became progressively worse. His fever was of the septic type. His cough was persistent and at times the pain in his chest was severe. He was given transfusions as well as sulfadiazine therapy. Cultures of pleural fluid were sterile and guinea pig inoculation failed to reveal evidence of tuberculosis. Three days before death the pain in the chest increased, the pulse rate increased and the patient became less alert and was extremely weak. Finally, after six weeks in the hospital, the patient died quietly.

DIFFERENTIAL DIAGNOSIS

Dr. Harry Alexander: In attempting to arrive at a proper diagnosis of this case, perhaps the most significant information is the unequivocal diagnosis of a malignant tumor made by the surgical pathologist from sections of sedimented cells of the pleural exudate. The questionable roentgen ray diagnosis of cancer of the lung would seem to support that diagnosis. Although the burden of proof is on him who would disregard this report, it may be well to mention the difficulty of being certain of what one sees in such sections obtained from exudates. This holds true particularly, I believe, of peritoneal fluid and less so of pleural fluid. I should like to ask Dr. Moore if this impression is correct.

Dr. Robert Moore: Your statement is entirely correct. In many inflammations of the serous surfaces, the mesothelial cells lining the cavity swell and take on the general appearance of epithelial cells. This is especially true of the reaction of the peritoneal surface in an ascites resulting from portal obstruction. According to the analysis of Helwig published in the Journal of the Missouri State Medical Association the probability of this diagnosis being correct is about 80 per cent.

Dr. Alexander: If one is to believe this report and assume that the patient had cancer, this discussion should attempt to reconcile the history to such a diagnosis, if possible, and to bring out other diagnoses.

The history shows that the patient had influenza some fifteen years ago and had coughed ever since. He was exposed for five or six years to tuberculosis and was said to have had weak lungs. There were bouts of fever and he coughed up blood on three occasions. To explain these findings the first consideration would be tuberculosis. Do you think that probable?

Dr. Paul Hageman: With the negative sputum findings it would be unlikely.

Dr. Alexander: Three or thirty negative sputum examinations would not rule out tuberculosis, but it does seem unlikely. Why then did he cough for fifteen years? Productive cough with occasional fever suggests chronic bronchitis or perhaps chronic bronchitis with sinusitis which is common enough. On the other hand, would this history lead one to expect to find actual lesions in the bronchi from a long standing infection or to subscribe to the belief that one can be susceptible to frequent colds, each of which may clear up and may one then expect to find but little infection in the bronchial tubes?

Dr. W. Barry Wood, Jr.: This patient gives a history of influenza about twenty years ago. This corresponds to the subsiding stages of the pandemic of 1917-1918. A not uncommon sequela of influenza is bronchiectasis. I feel that this individual has a chronic infection of his bronchi.

Dr. Alexander: Bronchiectasis or diffuse bronchitis?

Dr. Wood: Bronchiectasis.

Dr. Alexander: Notation was made of pus coming from the right lower bronchi and the other bronchi were clear. That should support the suggestion that he had bronchiectasis localized to the right side and not diffuse bronchitis. Five weeks before admission the patient became acutely ill with signs of a lesion in the right lower lung, evidence of obstructed bronchi and pleurisy with effusion from which a positive report of carcinoma was made. The pleural effusion was thin, greenish, slightly cloudy, containing 68,000 cells per cm., a few cocci and a negative culture. What lesion would produce such fluid?

Dr. Carl Harford: In pyogenic infections of serous cavities, cocci not infrequently are seen on smear but cannot be cultured. The pleurisy could be explained on the basis of an acute pneumonitis.

Dr. Hageman: During the last war Dr. Milton Winternitz emphasized the finding of epithelial metaplasia in the bronchi in influenza and suggested that an increase in the incidence of bronchogenic carcinoma should be expected. Perhaps the course of events in this patient is following this prediction.

Dr. Alexander: I have not seen this type of fluid with bronchiectasis. Does it occur with pneumonia?

Dr. Wood: Yes, it may occur in lobar pneumonia.

Dr. Alexander: I think all will agree that such a pleural reaction may come from contiguous infection. This may have been in the lung or from a subdiaphragmatic abscess if one were present as indicated in the roentgen ray report. The first film showed a high right diaphragm and possible air beneath the diaphragm.

Dr. Edward Massie: The man had several paracenteses. This was necessary to secure sufficient fluid. The air could have been introduced with the taps. The roentgen ray department excluded subdiaphragmatic abscess.

Dr. Ralph Pollack: Did the man have paralysis of the right diaphragm?

Dr. Edward Reinhard: Fluoroscopic examination showed that the diaphragm did move.

Dr. Alexander: May one consider that he had a carcinoma obstructing the bronchi with a reaction in the pleural cavity from an associated bronchiestasis?

Dr. Wood: The evidence for carcinoma of the bronchus is not convincing. The only finding in favor of the diagnosis is the report of the surgical

pathologist. The bronchoscopist saw no neoplasm and the report of the roentgenologist is only suggestive.

DR. HAGEMAN: If the diaphragm was paralyzed it would not be compatible with bronchiectasis.

DR. CARL MOORE: I would like to mention the fact that yeast organisms were found in the man's sputum on one occasion. It could be a fungus infection. The organisms, of course, could have been air borne.

DR. MASSIE: The chest surgery department saw this patient and made their diagnosis on the basis of the surgical pathologic report of assumed carcinoma of the lung. They did not feel that any surgical procedure was justified.

DR. ALEXANDER: One may call it then a lesion which is blocking the right lower lobe bronchus associated with infection?

CLINICAL DIAGNOSIS

Bronchogenic carcinoma.
Bronchiectasis.
Pleurisy.

DR. ALEXANDER'S DIAGNOSIS

Obstructive lesion of bronchus to right lower lobe.
Bronchiectasis of right lower lobe.
Pleurisy.

ANATOMIC DIAGNOSIS

Bronchiectasis of both lower lobes.
Pleurisy, right.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: At autopsy a bronchiectasis involving the bronchi to both lower lobes was found but the suppurative infection was limited to the bronchi of the right lower lobe. The pleurisy was associated with a chronic inflammation of the lung.

May I emphasize that the interpretation of the finding of tumor-cells in the sediment of serous effusions should always err on the conservative side? A positive report is not infallible and should be evaluated in the light of the other clinical and laboratory findings. A negative report is of even less value as it proves only that there were no demonstrable neoplastic cells in the one specimen submitted. The patient may well have a tumor but without desquamation of the cells into the fluid.

The relation of influenza and bronchiectasis has been discussed by many investigators. The pathologic changes of influenza are those of an ulcerative tracheobronchitis. Destruction of the walls of the bronchi may so weaken them that there is gradual dilatation. The loss of muscle and ciliary epithelium is the equivalent of obstruction and bacterial inflammation of bronchi and lung follows.

CASE 4

PRESENTATION OF CASE

The patient was a 34 year old white married woman who was first admitted to the Barnes Hospital on May 5, 1942.

Chief Complaints.—Pain in left chest, chills and fever and epigastric pain were complaints.

Family History.—Noncontributory.

Past History.—The patient had pneumonia as a child. At the age of 18 she had a fistula in ano; she had pertussis at 20 and malaria at 21. In addition she stated that she had had several attacks of influenza.

Present Illness.—Following the birth of her sixth child in August, 1941, the patient lost considerable blood and for one month continued to have hemorrhage from the uterus intermittently. A uterine tumor and the appendix were removed at that time. time. Recovery from the operation was uneventful and her health seemed restored until November, 1941, when epigastric pain developed. The pain was described as severe, radiating upward beneath the sternum and was felt as a painful "lump" in the upper abdomen, lasting but a day or two. The pain was relieved by medication and a soft diet which was maintained until February, 1942, when the patient felt quite well. Then there developed a sudden sharp pain in the left flank and lower left chest posteriorly. This was intense, increased on inspiration and was followed within a few hours by chills and fever. Her physician aspirated the left chest four times unsuccessfully. Despite various therapeutic measures the symptoms continued for one month when the patient began to vomit several times a day and was sent to a hospital in Jefferson City. She was not informed of the diagnosis and was given symptomatic treatment; all symptoms subsided within ten days (April 1). On April 12 the chills, fever and pain in the left chest returned and were continuous until the time of admission to the Barnes Hospital (May 5). Vomiting and severe epigastric pain likewise recurred a few days before admission to the hospital.

Physical Examination.—The positive findings on physical examination were: slight fever (100 F.), pyorrhea of the gums, decreased tactile fremitus, impaired resonance and decreased whispered and voice sounds over the left chest anteriorly and posteriorly. The liver edge was felt from 3 to 4 cm. below the right costal margin.

Laboratory Findings.—Red blood cells were 3,650,000; Hb. 10.7 gm. (70 per cent); white blood cells 17,750; differential count was "stab" forms 26 per cent, segmented neutrophils 63 per cent; urine had 2 + albumin; stool normal; sputum mucopurulent, tubercle bacilli were not found. Blood culture showed no growth; gastric analysis, free acid 9°; electrocardiogram, sinus tachycardia; roentgen-ray of lungs, pulmonary infiltration left lower lung field; roentgen ray and gastrointestinal series were indeterminate.

Course in Hospital.—Under conservative treatment all symptoms subsided and the patient was discharged in two weeks (May 19). The shadow in the left lung cleared somewhat. The diagnosis of pneumonitis or possible lung abscess was made and the patient was advised to return for observation in from four to six weeks.

Second Admission.—June 15 to 23, 1942.

Interval History.—The patient felt well until June 11 when she developed intermittent cramping pain in the left flank. Two days later the pain shifted to the epigastrium where it became intense and constant on the day before admission. There were no nausea, vomiting or chills.

Physical Examination.—The temperature was 98 F. There was a red, papular skin eruption over the arms, chest and face which faded in twenty-four hours. The abnormal signs over the left chest were less marked than on the previous admission but were still discernible. There was diffuse tenderness with muscle guard across the epigastrium. There was a mild, chronic cervicitis and the body of the uterus was moderately enlarged.

Laboratory Findings.—Red blood cells were 4,000,000; Hb. 11.5 gm., white blood cells 9,400; differential count was "stab" forms 6 per cent, segmented neutrophils 56 per cent and lymphocytes 30 per cent; the Kahn reaction was negative; icteric index 6; total blood proteins 8.3, albumin 4.3, globulin 4.0. Roentgen ray of chest showed almost complete resolution of recent infiltration. Cholecystograms revealed a normal gallbladder.

Course in Hospital.—Under symptomatic treatment patient improved rapidly and was discharged apparently well eight days later.

Third Admission.—July 26 to August 8, 1942.

Interval History.—Patient felt well until July 20 when she suddenly developed malaise, chills and fever of 104 F. Her physician told her a blood smear revealed malaria and she was given quinine without effect. Nausea and vomiting began within a few days. On July 24, severe cramping abdominal pain appeared in the upper abdomen accentuated by the taking of water or food. On the day of admission cramping pain in the left lower quadrant developed, radiating into the right lower quadrant.

Physical Examination.—The temperature was 104 F. and the pulse 126. The abdomen was slightly distended. There was generalized tenderness more marked on the left side of the abdomen. There was no rigidity and no masses were felt. On pelvic examination there was tenderness high in the left fornix.

Laboratory Findings.—Red blood cells were 3,820,000; Hb. 72 per cent; white blood cells 12,650; differential count was myelocytes 3 per cent, "juvenile" forms 6 per cent, "stab" forms 54 per cent, segmented neutrophils 24 per cent, lymphocytes 13 per cent. Urine and stool were normal; blood culture was sterile; agglutination test, B. proteus OX2 positive in dilution of 1 to 20.

Course in Hospital.—The patient was seen by a surgical consultant who found definite tenderness in the left lower abdomen and made a diagnosis of peritonitis. He advised conservative treatment. A gynecologic consultant found no abnormalities in the pelvis. The patient was started immediately on sulfadiazine therapy and a Miller-Abbott tube was passed to combat the distention. Three days after admission a blood culture was taken and revealed a nonhemolytic streptococcus in the blood stream. Agglutination tests with the B. proteus OX19 antigen were positive in a dilution of 1 to 80. A paracentesis was performed at the end of the first week because of suspected ascites. A few drops of serosanguinous fluid were obtained and cultures from the fluid contained B. coli and a slightly hemolytic streptococcus. Two days before death there was a friction rub over the right lower lung field. The patient finally lapsed into coma and died after thirteen days in the hospital.

DIFFERENTIAL DIAGNOSIS

Dr. Harry Alexander: Perhaps the best way to approach this case is to divide the course of the illness into two phases: first, that which preceded admission to the hospital and, second, that since then. The first phase concerns the pulmonary infection which began with fever and sudden pain in the left lower chest but with no definite etiology. On admission to the hospital the diagnosis according to roentgen ray findings was pneumonitis and lung abscess.

Dr. Edward Massie: The roentgen ray film is compatible with abscess and the diagnosis of abscess was made upon the basis of the character of the sputum.

Dr. Edward Reinhard: She did not have much cough.

Major Dan Myers: The roentgen ray shadow is compatible with one of the chronic types of pneumonia. The normal positions of the diaphragm and trachea exclude blocking of the bronchus.

Dr. Alexander: Whatever type of infection this may have been, the shadow cleared one month after admission.

Gastrointestinal symptoms during the first phase were those of one brief episode of epigastric pain and intense vomiting which lasted forty-eight hours. This was relieved by a soft diet and medication but recurred in three weeks. The normal gastrointestinal roentgen ray series leads one to assume that vomiting and pain were not alimentary in origin.

The second phase began one month after leaving the Barnes Hospital in June, when acute pain appeared in the left flank, radiating to the epigastrium with much tenderness and no fever, which subsided promptly. Finally she developed peritonitis. The patient had many examinations by competent observers who differed in their opinion of the etiology.

What then was the cause of the peritonitis? Was it tuberculous? She had pulmonary signs, a past history of influenza on several occasions and pneumonia as a child.

Dr. Paul Hageman: I would not care to support that diagnosis.

Dr. Alexander: What are we to look for in a case of peritonitis in which the origin is not revealed? Are there any suggestions as to where the focus may have been?

DR. CARL MOORE: The focus could have been in the pelvis from a tubal abscess.

DR. ALEXANDER: That is not an unusual type of peritonitis. However, there were opinions from gynecologists which rule out the pelvis as the source of infection. Do you think it possible that an interval of a year could have elapsed from the time of her pelvic operation done a month after the birth of her child, if the pelvis were involved? Any such operation probably would include a curettage. Is it possible that a curettage a month after pregnancy started up an anaerobic streptococcal infection?

DR. W. BARRY WOOD, JR.: That is possible but I think it very unlikely. Anaerobic strepococcus was thought of because it is a cause of long standing peritonitis, but anaerobic cultures were made which ruled out that possibility.

DR. ALEXANDER: Could you identify the streptococcus isolated from the blood and peritoneal exudate in this case?

DR. WOOD: It fell in the Alpha group because of the hemolysis. It was a slightly hemolytic streptococcus.

DR. ALEXANDER: What else may one look for here as a cause of peritonitis? What about intestinal obstruction? There was a history of fecal vomiting. May perhaps obstruction have given rise to pain and distention?

DR. HAROLD BULGER: There is the possibility of a neoplastic peritonitis.

DR. ALEXANDER: Since the pelvis was apparently normal do you believe there could have been a primary tumor of the peritoneum?

DR. BULGER: That could probably be ruled out by observation during the abdominal operation following pregnancy.

MAJOR MYERS: From the findings in the chest and abdominal condition I think you can exclude tuberculosis and neoplasm. The picture here is very similar to some seen in abscess of the spleen. The presence of tenderness in the left upper quadrant, especially in this case, would favor that diagnosis. I have seen one patient with actinomycosis who had similar signs and symptoms.

DR. ALEXANDER: Would you accept the suggestion that the osteopath who aspirated her chest four times unsuccessfully introduced organisms from the lung into the spleen? I think that is possible.

DR. MASSIE: If he did inject organisms into the subphrenic tissues, there might be displacement or distortion of the stomach. One would thus suspect that infection traveled by way of the blood stream.

DR. EDWARD REINHARD: The heart was normal.

STUDENT: What is the possibility of a perinephric abscess?

DR. ALEXANDER: That is a good suggestion and should be considered.

STUDENT: Can anemia of this type be correlated with any type of infection?

DR. CARL MOORE: I should imagine that the anemia occurred from depression of the marrow which would be present in most forms of infection.

DR. ALEXANDER: All are then agreed that the pulmonary and abdominal signs were not separate incidents but that there was a casual relation between them?

CLINICAL DIAGNOSIS

Generalized peritonitis.
Localized abscess in abdomen.
Pneumonitis, left.
Fibrinous pleurisy, right.

DR. ALEXANDER'S DIAGNOSIS

Chronic infection involving the left lung and organs and tissues of the left upper quadrant of the abdomen.
Generalized peritonitis.
Fibrinous pleurisy, right.

ANATOMIC DIAGNOSIS

Actinomycotic abscesses of the spleen and liver.
Thrombophlebitis of splenic vein at hilum of spleen.
Acute fibrinopurulent peritonitis.
Fibrous scars in the lower lobe of left lung.
Fibrous pleural adhesions over diaphragm and partial destruction of muscle of diaphragm.
Acute fibrinous pleurisy, right.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: The most important point for discussion of this case is the pathogenesis of the lesions in the abdomen. It might be assumed that there was first an actinomycosis of the left lower lobe, a pleurisy, perforation of the diaphragm, localized peritonitis about the spleen, abscesses in the spleen, pylephlebitis, abscesses in the liver and terminal peritonitis. In favor of this view is the chronology of clinical symptoms and signs and the evidence of destruction of the muscle of the diaphragm and replacement with scar tissue. Opposed to this view is the absence of demonstrable actinomycotic lesions in tissue above the diaphragm despite careful search. It is possible that actinomycosis may heal but this would be unusual.

A possible portal of entry of the actinomyces is through the gastrointestinal tract or the genital tract. The onset of the illness was during the puerperium in 1941. The appendix and a tumor of the uterus were removed. Actinomycosis of the ileocecal region is one of the common types of this fungal disease and actinomycosis of the ovaries and uterine tubes has been reported. There is nothing in the report of the surgical pathologist so far as it is known to us to suggest actinomycosis. The wound healed readily and it is well known that the abdominal incision frequently remains as a sinus tract in operations for ileocecal actinomycosis. Finally, careful gross and microscopic study of the intestine and uterine tubes at autopsy failed to give evidence of a fungal disease.

The portal of entry and pathogenesis of the splenic lesions must thus remain in doubt. After the establishment of the splenic abscesses, the course of events is clear.

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NOVEMBER, 1942

EDITORIALS

TUBERCULOSIS AND CANCER MORTALITY RATES

During the last two decades public health problems have changed radically. An outstanding illustration of the changing public health picture in this country is given by the Metropolitan Life Insurance Company by contrasting the mortality rates of cancer and tuberculosis. So great has been the reduction in the death rate from tuberculosis that the chances of eventually dying from this disease, according to present day health standards, are less than half those of only two decades ago. For the white male infant these chances decreased from 65 per 1,000 in 1920 to 32 per 1,000 in 1940, while for white female infants they dropped from 58 to 21 per 1,000. During this same time the recorded mortality from cancer has increased so that for the newborn child the chances now of eventual death from cancer are approximately 50 per cent greater than they were twenty years ago. At the present time these chances are about 108 per 1,000 for the newborn male and 136 per 1,000 for the newborn female.

The greatest probability of eventual death from tuberculosis is found between the ages of 5 to 15. The peak values in 1940 were about 33 per 1,000 for males and 21 per 1,000 for females. In cancer, the peaks come much later, at age 50 for males and age 35 for females with about 120 and 150 chances per 1,000, respectively, in 1940. The reason for the decrease in the chances of eventual death from cancer at the highest ages may be that the cardiovascular-renal diseases are dominant in later life and become relatively more important than cancer.

The chances of eventual death from cancer are markedly higher for females than for males at all ages of life except for ages 65 and over; the risk of tuberculosis is the greater for males.

In 1920 the chances of eventual death from cancer or from tuberculosis were practically equal for the newborn male; by 1940 cancer presented three and a half times that of tuberculosis. For newborn females, the divergence of chance of mortality has become even greater than in males. In 1920 the chance of the newborn female of eventual death from cancer was one and two thirds that from tuberculosis; by 1940 the chance was six and one half times as great.

Many factors enter into these changed mortality rates. Lengthened life span has played an important part in this contrast but control of infectious diseases, higher standards of living and the utilization of the discoveries and inventions of modern science have had great influence.

AMERICAN MEDICAL DIRECTORY

The seventeenth edition of the "American Medical Directory" was issued in October. The volume contains the names of 201,272 physicians. It has 2,801 pages, 126 pages more than the sixteenth edition. Since the last edition 15,223 new names of recent graduates and physicians from abroad have been added and more than 72,114 changes of address have been made. Names dropped from the Directory number 8,656, principally on account of death.

Other new data included in the Directory are the certifications of 4,000 additional physicians as specialists by the various American boards. Information has been added on the new boards covering plastic surgery and neurologic surgery. The American Board of Internal Medicine now also certifies candidates in the medical subspecialties of allergy, cardiovascular disease, gastro-enterology and tuberculosis. The American Board of Surgery now certifies specialists in the subspecialty of proctology.

The Directory shows, as far as information was obtainable, those physicians who had entered the armed forces prior to the time the Directory was printed. The medical officers of the Reserve Corps of the United States Army and the Army of the United States, of the Navy and the Naval Reserve, and of the National Guard on active duty are listed at permanent home addresses followed by symbols designating the services. As in previous editions, the medical officers of the regular United States Army, Navy and United States Public Health Service are listed according to rank in one section. For military reasons, Army and Navy officers, however, are listed in the geographic section of the Directory under Washington, D. C., instead of the station to which they have been assigned.

The Directory follows the plan of former editions and maintains the same accuracy of earlier editions. However, physicians have gone into military service so rapidly in recent weeks that the notation of men in service necessarily is far from complete.

The first part of the Directory covers national and interstate information including data regarding the officers and the Constitution and By-Laws

of the American Medical Association, histories of medical schools, medical libraries, medical journals, the officers and members of special societies, members of the National Board of Medical Examiners and officers of the examining boards in the medical specialties, approved internships, approved residencies and fellowships and government officers of the Army, Navy, Public Health Service, Veteran's Administration and the Indian Field Service.

The second part of the Directory is divided by states and lists hospitals and physicians in each state as well as giving data regarding medical practice and digest of the law, officers of examining boards, the board of health and state and county medical societies.

The last section of the volume is a list of all licensed physicians arranged alphabetically by surname, followed by the city and state under which detailed data regarding the physician may be found.

The American Medical Association publishes the Directory as a service to members and state associations and information in the Directory is available to all members through the office of the Missouri State Medical Association.

NEWS NOTES

Dr. Lawrence T. Post, St. Louis, has been elected president-elect of the American Academy of Ophthalmology and Otolaryngology. He will take office on January 1, 1944.

Dr. Sherwood Moore, St. Louis, was elected president-elect of the American Roentgen Ray Society at the society's forty-third annual meeting in Chicago, September 15 to 18.

The American Gastroenterological Association has announced the publication of a new journal beginning January 1, 1943, to be called *Gastroenterology*. The journal will be owned by the association and be its official publication. It will be issued monthly.

The McMillan Hospital, St. Louis, has received a grant of $200,000 from the Federal Works Agency to provide an additional 160 hospital beds and to equip a large operating room according to Washington University. McMillan Hospital is one of the Washington University group of hospitals.

Dr. E. H. Skinner, Kansas City, was a guest of the Michigan State Medical Society at its seventy-seventh annual meeting in Grand Rapids on September 23, 24 and 25. Dr. Skinner spoke on "Duodenal Ulcer as a Wartime Disease of Citizen and Soldier."

Dr. Earl C. Padgett, Kansas City, was a guest of the Polk County (Iowa) Medical Society at Des Moines, Iowa, September 16, and spoke on "Burns and Other Traumatic Injuries."

The St. Louis Society for the Blind in cooperation with the National Society for the Prevention of Blindness and the Association for Research in Ophthalmology gave a dinner in honor of Mr. Lewis H. Carris, New York, Director Emeritus of the National Society for the Prevention of Blindness, in St. Louis on October 10. Mr. Carris was the recipient of the 1942 Leslie Dana Medal. He delivered an address on "Twenty Years in Saving Sight."

The Annual Conference of Secretaries of Constituent State Medical Associations will be held at the office of the American Medical Association in Chicago on November 20 and 21. Existing problems and problems that may develop as the result of the intensification of the war program will be discussed. Officers of constituent state medical associations and officers of component county medical societies are invited to the conference.

Dr. Richard S. Weiss, St. Louis, president of the Missouri Social Hygiene Association, presided at special public session on social hygiene in St. Louis on October 25. The meeting was sponsored by the American Social Hygiene Association and the Missouri Social Hygiene Association in connection with the seventy-first annual meeting of the American Public Health Association. "Venereal Disease Prevention in Wartime" was presented by Major William A. Brumfield and Captain Charles S. Stephenson, Washington, D. C., and Dr. Malcolm Merrill, San Francisco. Dr. Rogers Deakin, St. Louis, was discussion leader and discussants were Drs. Joseph F. Bredeck, Harriet S. Cory, Edgar B. Johnwick, E. G. McGavran and R. R. Wolcott, St. Louis.

THE STATE BOARD OF HEALTH

MISSOURI PLAN FOR MEDICAL AND HOSPITAL, OBSTETRIC AND PEDIATRIC CARE FOR WIVES AND INFANTS OF MEN IN MILITARY SERVICE

The Division of Child Hygiene of the State Board of Health in cooperation with the Children's Bureau, Washington, D. C., is initiating a Medical and Hospital Obstetric and Pediatric Care program in Missouri for the families of the men in the armed forces. This program will attempt to relieve some of the medical problems occurring throughout the state (and especially around the cantonment areas) that have arisen as a result of homes being upset, finances depleted and movement of families to new

areas within the state and into the state from other parts of the nation.

This program will subsidize the services of the local medical practitioner on a case basis and in a small way repay him for such services. When hospitalization is necessary for the safety of the mother and newborn child and sick children such care will be paid for under this program.

Funds are available at the present time to carry out this program to a limited degree. An additional request for funds is being made to the Children's Bureau so that a complete medical and hospital obstetric and pediatric care program may be worked out on a state-wide basis.

This is a program of cooperation with all doctors of medicine in Missouri who are registered with the State Board of Health. This insures the patient the right of choice of physician and, in these times when there is a shortage of physicians, makes available to all who are eligible this much needed care.

1. Eligibility

All expectant mothers in the state, irrespective of legal residence, who state that the father of the expectant child is in military service (U. S. Army or U. S. Navy, including Marine Corps and Coast Guard) and not a commissioned officer will be eligible for obstetric medical and hospital services provided for under this program without cost to the family. Any child under 1 year of age whose father is in the military service, but not a commissioned officer, will be eligible for pediatric, medical and hosptal care under this plan.

2. Authorization

Forms for application for this service will be distributed to local health officers, offices of secretaries of county medical societies, Red Cross headquarters, U.S.O. headquarters, and the office of the commanding officers of Camp Crowder, Fort Leonard Wood, Jefferson Barracks and Fort Leavenworth. Persons eligible for this service may obtain these application blanks and should take them to their attending physician who will complete part of the blank and who will contact the local health officer or the secretary of the county medical society. Part 1 of the application will be filled out by the patient and part 2 by the attending physician. The local health officer, or medical society secretary, will determine the eligibility of the patient and will recommend to the Director of the Division of Child Hygiene that the case be accepted for treatment or delivery as the case may be. Payment will be made to the attending physician on a case basis and the Director of the Division of Child Hygiene of the State Board of Health will give final approval for payment.

3. Standards of Medical Care

Medical care provided under the plan will be authorized by the State Board of Health and the State Health Commissioner only to physicians who are licensed to practice in Missouri and are registered with the State Board of Health (according to H.B. No. 201, 61st General Assembly).

Obstetricans and pediatricians who are certified by the American Specialty Boards or those who have devoted the major portion of their practice for the last three years will be appointed by the State Health Commissioner as consultants and whenever possible will be available for consultations with the general practitioner participating in this plan. Where practical the obstetric and pediatric consultant in the Division of Child Hygiene of the State Board of Health will be used for consultations.

4. Standards of Hospital Care

Obstetric or pediatric hospital care will be authorized in the hospitals of the state which have been approved by the American College of Surgeons or in those hospitals recognized by the regular medical profession in that community as adequate for obstetric and pediatric care.

5. Cost of Medical and Hospital Care

a. *Obstetrics.*—Payment will be made on the following fee schedule:

A. Thirty-five dollars ($35.00) for complete medical service during the prenatal period, including at least five prenatal examinations, for labor, for the puerperium (including care of the newborn infant) and for postpartum examinations.

B. Twenty-five dollars ($25.00) for complete medical service during the prenatal period in which less than five prenatal examinations were made, for labor, for the puerperium (including care of the newborn infant) and for postpartum examinations.

C. Eighteen dollars ($18.00) for emergency delivery service, for the puerperium (including care of the newborn infant) and for postpartum examinations. Eligibility is to be established and confirmation of the emergency must be made by the local health officer, or Secretary of the county Medical Society.

D. Two dollars ($2.00) for prenatal care only. If the physicians render prenatal examinations and the patient transfers to another community entering the care of another physician, payment will be made at the rate of $2.00 per examination.

b. *Pediatrics.*—Child health supervision will be provided in existing child health conferences. If no such conferences are available they will be established if possible. If the infant becomes sick and needs home or hospital care, the first medical visit will be paid for by the State Board of Health on an emergency basis without prior authorization at the rate of the usual fee in that vicinity. Subsequent care will be paid for by the State Board of Health only after prior authorization by the Director of the Division of Child Hygiene at the rate of $10.00 per week, either in the home or hospital provided there has been a minimum of three visits per week to the patient. Such authorization cannot ex-

ceed two weeks or a total of $20.00 for the case without review of the case and recommendation by a pediatric consultant to the State Board of Health. If there have been less than three visits per week the physician will be paid a proportionate amount. Obstetric and pediatric consultants will be paid a fee of $10.00 when consultation is necessary.

c. *Hospital Costs.*—Hospital care that has been authorized by the State Board of Health will be paid for at the per diem cost rate of a ward bed for each hospital approved. The per diem cost rate for maternity care will include all costs of care while the mother and newborn infant are in the hospital, including the delivery room, laboratory services, drugs and such except the medical services of the attending physician. Payment for hospital care for pediatric cases will be made on a per diem cost rate of each approved hospital. Payment will be made to the hospital upon receipt of a record showing the date and hour of admission and discharge of each patient for home care as authorized by the Director of the Division of Child Hygiene of the State Board of Health. The per diem cost rate at each hospital will be determined by the study of the costs of each hospital as approved by the Director of the Division of Child Hygiene.

All inquiries regarding this program should be directed to M. L. Gentry, M.D., M.P.H., Director of the Division of Child Hygiene, State Board of Health, Jefferson City, Missouri.

The blanks to be used follow.

Maternity Care

THE STATE BOARD OF HEALTH OF MISSOURI
DIVISION OF CHILD HYGIENE

County of
Date

Application for Authorization for Medical and Hospital Maternity Care

Prepared for the use of expectant mothers in need of maternity care whose husbands are on duty with the United States Army or Navy, including Marine Corps and Coast Guard (except wives of commissioned officers)

Part 1—To be filled out by patient.

Patient's name
(Last) (First) (Middle)
Patient's present address..... Tel. No.
(Street) (City) (State)
Name of Husband.....
(Last) (First) (Middle)
Military rank or title.....
Husband's address
Signature of patient.....Date signed.....

Part 2—To be filled out by attending physician.

Maternity Care

Expected date of confinement..... Date patient given first physical examination by me during this pregnancy
Delivery recommended: At Home..... In hospital.....
Name of hospital recommended.....
If medical care is authorized by the State health agency, I agree to provide to the best of my ability prenatal, delivery, and postpartum medical care to this patient and care for the newborn infant at the rates paid by the State health agency, without further charge to the patient or her family.
Date
Signed, M.D.
Attending physician will mail form to.....
(Name)
State Director of Maternal and Child Health.....
(Address)

Part 3—To be filled out by State Director of Maternal and Child Health.

Date form received from attending physician.....
Date patient was notified that medical hospital care had been authorized
Date physician was notified that medical hospital care had been authorized
Date hospital was notified that hospital care had been authorized
Date patient's name was referred to local public-health nursing service
Date completed medical record was received from physician
Amount paid physician $..... Date of payment.....
Date admission and discharge records were received from hospital
Amount paid hospital $..... Date of payment.....

Pediatric Care

DIVISION OF CHILD HYGIENE

County of
Date

Application for Authorization for Medical and Hospital Pediatric Care.

Prepared for the use of children under 1 year of age in need of medical care whose fathers are on duty with the United States Army or Navy, including Marine Corps and Coast Guard (except children of commissioned officers).

Part 1—To be filled out by parent.

Patient's Name
(Last) (First) (Middle)
Patient's present address..... Tel. No.....
(Street) (City) (State)
Name of Father.....
(Last) (First) (Middle)
Military rank or title.....
Father's address
Signature of parent (father or mother).....Date Signed.....

Part 2—To be filled out by attending physician.

Pediatric Care

Date patient first seen.....
I recommend that patient be treated at home.....In hospital.....
Name of hospital recommended.....
If medical care is authorized by the State health agency, I agree to provide to the best of my ability the necessary medical care to this patient at the rate paid by the State health agency without further charge to the father or mother.
Date
Signed, M.D.
Attending physician will mail form to.....
(Name)
State Director of Maternal and Child Health.....
(Address)

Part 3—To be filled out by State Director of Maternal and Child Health.

Date form received from attending physician.....
Date patient was notified that medical hospital care had been authorized
Date physician was notified that medical hospital care had been authorized
Date hospital was notified that hospital care had been authorized
Date patient's name was referred to local public-health nursing service
Date completed medical record was received from physician
Amount paid physician $..... Date of payment.....
Date admission and discharge records were received from hospital
Amount paid hospitals $..... Date of payment.....

MISCELLANY

PLANS TO MEET NEED FOR MEDICAL CARE

Plans for meeting the need for medical care in communities where a shortage of physicians has developed are being made now by the U. S. Public Health Service and the Procurement and Assignment Service of the War Manpower Commission, Paul V. McNutt, chairman of the War Manpower Commission, announced, September 22. He added that the two services are cooperating closely in the planning of this emergency action.

Mr. McNutt explained that in many areas an acute need for medical service has arisen as a result of extraordinary increases in population brought about by expansion of war industries or other war activities. In other areas there is a shortage of medical service resulting from the entry of physicians into the armed forces.

Distributed throughout the industrial areas of the country are more than three hundred communities in

which the lack of medical care is being felt. The chairman pointed out that among the most critical of these localities are Baltimore County (around Glenn L. Martin Company); Valpariso, Fla.; Huntsville, Ala.; Childersburg, Ala.; LaPorte, Ind.; Charleston, Ind.; Fort Knox, Ky.; Rantoul, Ill.; Texarkana area; Bremerton, Wash.; Pryor-Choteau, Okla.; Vallejo, Calif.; Velasco, Texas; Waynesville, Mo.; Wichita Falls, Texas, and Norfolk, Va.

Mr. McNutt also announced his approval of a statement of policy adopted by the directing board of the Procurement and Assignment Service in which the Procurement and Assignment Service accepts the responsibility of ascertaining the needs of the civilian population for medical service and providing the medical personnel to meet them.

The principles set forth in this policy statement, Mr. McNutt said, were developed in cooperation with the federal officials concerned and have the approval of the Surgeon General of the United States Public Health Service. The statement has been approved by the boards of trustees of the American Medical Association, the American Dental Association and the war service committees of the two associations, and the executive committee representing the State and Territorial Health Officers Association.

Following are the principles recommended by the directing board of the Procurement and Assignment Service for meeting the emergency needs:

1. That it is a responsibility of the Procurement and Assignment Service to ascertain the needs of the civilian population—nonmilitary—for medical service.

2. That it is the responsibility of the Procurement and Assignment Service to aid in providing the medical personnel to meet these needs.

3. That, as now constituted, the Procurement and Assignment Service is not in a position to deal with the financial and administrative problems involved in the provision of medical care.

4. That as far as possible these problems should be met at the state level in view of the many different types of problems and needs and the relation of these and their solution to local situations.

5. That a survey of these needs should be made by the existing committees of the Procurement and Assignment Service with the aid of such technical assistance as may be necessary. It is especially desirable that in determining these needs the state procurement and assignment committee seek the cooperation of the state health department, of the state medical society and of the state dental society, of industry, of organized labor and of other agencies, such as the state defense council, which should be able to make significant contributions to the solution of this problem.

6. That whenever possible the civilian needs as determined by these committees should be met through local arrangements, resources and agencies. In case assistance is needed for the organization, administration or financing of necessary medical or dental services in these areas, the responsibility should devolve on an agency which should include representatives of the state health department, the state medical society and the state dental society, with the cooperation and support—financial and technical—of the appropriate federal agencies, the administration of funds being delegated to the appropriate state agency.

7. That, since these problems have been occasioned by the war and in many instances transcend state lines, the federal government has a definite responsibility to cooperate with the states in meeting these needs by the provision, when necessary, of financial and technical assistance.

8. That the needs for medical care in certain areas are so acute and the pressure from various sources so great that it is imperative to have prompt action for implementation of this program. It appears to the directing board that the responsibility for the initiation of such action rests with the War Manpower Commission.

THE NEED OF THE ARMY FOR PHYSICIANS

The office of the Surgeon General, United States Army, Washington, D. C., requested publication in the *Journal of the American Medical Association* of the following statement concerning the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. The statement, which was carried in the October 10 issue of the *Journal of the American Medical Association*, follows:

Rank on Initial Appointment

The Surgeon General realizes that physicians of our country are being asked to make individual and collective sacrifices incomparably greater than those of other professional groups. Original appointments in higher grades, no matter how desirable, cannot be recommended for all physicians in order to compensate them for their sacrifices which must be faced, both on a financial and on a familial basis. The physician must accept these sacrifices with his heritage of altruistic devotion to suffering humanity, which is universally anticipated. In justice, however, to those medical officers who accepted in peacetime their obligation of service to our country, and who during the long months since August, 1940, have made possible an adequate medical service for our ever increasing army, initial appointments of new officers in grades to which qualified officers already in service should be promoted must necessarily be restricted.

Recruitment Must Continue

The response of the medical profession to the Army's request for medical officers has been most gratifying. However, active recruitment throughout 1943 will be necessary to keep pace with the accelerated mobilization rate.

The Procurement and Assignment Service of the War Manpower Commission has furnished a tremendous aid in the procurement of applicants and in furnishing necessary information regarding their professional qualifications and availability for military service. Recently this service has furnished the Surgeon General with names of qualified, eligible physicians who have signified their desire to enter the Medical Department and are not considered essential to the health and safety of the civilian community. These physicians are being requested, either directly or through the medical officer recruiting boards in various states, to make application for appointment in the Medical Corps.

Young Men Most Needed

In regard to this, it must be borne in mind that acceptance by the armed forces of applicants above Selective Service age tends to create in civil communities a shortage of doctors. This may result in deferment of younger men whose prerogative it is to serve. Young physicians must be procured for assignment to duty with combat troops, both of the army ground forces and of the army air forces. Of vital interest is the fact that a relatively small percentage of recent graduates in medicine who completed one year of internship have accepted the responsibilities of military service. This group of physicians, and those slightly older, are the ones on whose shoulders the responsibilities for adequate military care must fall. The Surgeon General urges the physicians who served in the first world war, who so loyally offer their services in the present emergency, to utilize their prestige and influence to persuade the younger men to accept their responsibility in the national war effort, as the physicians of 1917 and 1918 accepted theirs.

How to Volunteer

From correspondence received in the Office of the Surgeon General it is apparent that many unanswered questions should be explained. To help clear this maze of doubt, a few questions will be answered and clarified in the following paragraphs.

First, have you volunteered? Only if the following conditions have been fulfilled:

1. If you have filled out application blanks at a medical officers recruiting board and have had a final type physical examination at an army installation.

2. If you have filled out these blanks and sent them to the Office of the Surgeon General, with the report of your physical examination.

3. If you are already in the service.

A personal letter written to the Surgeon General applying for duty is not sufficient; neither is the completion and return of questionnaires such as those distributed by the Procurement and Assignment Service of the War Manpower Commission sufficient. You must apply on regular War Department forms to the Surgeon General directly or through the medical officers recruiting board before you have volunteered your services. The latter is preferable (application through the medical officers recruiting board) for it allows completion of the essential papers more rapidly than can otherwise be accomplished. So, contact your board. Physicians who are designated by the Procurement and Assignment Service as "essential" for civilian medical services cannot be commissioned and should not initiate applications for commissions.

Assignment to Special Services

What kind of work will you do?

A sincere effort is being made by this office to place men in the same type of work for which they received training in their civilian medical practice. The papers of every officer appointed are examined carefully before assignments are made. Those individuals who have had special training in any field of medicine can best serve their country doing that work. We are hoping not to have ophthalmologists doing amputations of extremities. We do not wish to have general surgeons as chiefs of radiology departments. It will be impossible to classify every individual properly, but at the present time the vast majority of men are being placed as their training indicates, by automatic processes in the Surgeon General's office. Therefore you, if a specialist, can be assured that every effort will be made to continue you in an assignment in keeping with your training and experience. This will keep the level of military medicine on a high plane and at the same time further the education of the individual concerned and increase the standards of medical care for the soldiers in the front lines.

Some Don't's

To help the Surgeon General, please observe the following:

1. Do not come to Washington to talk to officers engaged in this work. Your presence slows the call to active duty of many men.

2. Do not try to influence this office by the writing of letters to influential individuals in other government services. Their time is already engaged in functions essential to successful completion of our war effort.

3. Do not send in duplicate applications. This results in much confusion in all War Department offices concerned in the calling to duty of qualified physicians.

4. Do not write for information unless it is absolutely essential and of an emergency nature. Many letters are answered daily which, on proper consideration, should never have been written; or the answers could have been given by medical officers recruiting boards.

5. The action of the grading committee appointed in this office in determining the initial grade must be final. The decision is reached only after careful consideration of many factors which must be taken into account and cannot possibly be understood by one not in the military service.

Now Is the Time to Volunteer!

Our army is a young army. It needs young doctors—doctors of troop age, 45 years or younger—men who can work in the field hospitals, mobile hospitals and other medical installations. Doctors above this age should take care of civilian medical needs, a necessary patriotic service, unless a position vacancy awaits them in military service. The patriotic spirit of our country is, and must continue to be, reflected in the response of our doctors to this call to arms.

If you are in the age group needed, complete your application.

Your Army needs you!

Your Nation awaits your action!

NO WIDELY ACCEPTED EXPLANATION YET FOR SEASICKNESS

A review by W. J. McNally, M.D., and E. A. Stuart, M.D., Montreal, Canada, in the current issue of *War Medicine*, of experimental work on the labyrinth or inner ear in relation to seasickness and other forms of motion sickness fails to bring to light any widely accepted explanation for the cause of the condition or immunity to it. "The labyrinth has been shown by experiment to play an important, probably the most important, part in the causation of motion sickness," the two physicians explain.

DIABETES SHOULD BE STRICTLY CONTROLLED

An additional reason why diabetes should be kept under strict control is suggested by a report by James R. Lisa, M.D.; Morton Magiday, M.D.; Irving Galloway, B.S., and James Finlay Hart, M.D., New York, in *The Journal of the American Medical Association* for September 19 that arteriosclerosis or hardening of the arteries is more common in diabetic than in nondiabetic persons. Their findings were based on a postmortem study of 193 diabetic and 2,250 nondiabetic patients.

Among their other findings are that arteriosclerosis is more frequently severe in diabetic than in nondiabetic persons; severe arteriosclerosis is more frequent among persons with diabetes at all ages, and that "sclerotic (hardening) changes in both the diabetic and the nondiabetic person increase in frequency as age advances, but among persons with diabetes a given frequency of these changes is reached about ten years earlier than among those without the disease. . . ."

CIVILIANS IN TARGET AREAS OF COUNTRY SHOULD CARRY IDENTIFICATION TAGS

"To facilitate identification, each civilian in target areas of the country should be encouraged to carry an identification bracelet or necklace or metal identification pocket piece," *The Journal of the American Medical Association* advises in its October 17 issue in a condensation of Bulletin No. 5 on Emergency Mortuary Services, to be issued by the Medical Division of the United States Office of Civilian Defense. It is pointed out that in some air raids 40 per cent of the casualties may be fatal and that although the wounded require first attention, the dead should also be cared for promptly and inconspicuously.

The staff of the emergency mortuary service, according to the bulletin as condensed in *The Journal*, should include a physician to confirm deaths and a coroner or other medical examiner's representative who has authority to sign death certificates and order disposal of unidentified bodies. Volunteer members of an emergency mortuary organization are to enroll with the Volunteer Civilian Defense Office and are entitled to wear the armband and insignia of the Emergency Medical Service, of which the Mortuary Service is a part.

Among the other points brought out in the condensation by *The Journal* is that it is important that the identification tag on gas contaminated bodies be distinctly marked "gas case" in order that persons handling them will be warned to give them special treatment.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.
Camden County Medical Society, December 10, 1941.
Benton County Medical Society, December 12, 1941.
Ste. Genevieve County Medical Society, December 19, 1941.
Pulaski County Medical Society, December 22, 1941.
Moniteau County Medical Society, December 23, 1941.
Miller County Medical Society, December 26, 1941.
Chariton County Medical Society, December 29, 1941.
Montgomery County Medical Society, January 20, 1942.
Holt County Medical Society, January 26, 1942.
Dallas-Hickory-Polk County Medical Society, January 28, 1942.
Butler County Medical Society, February 21, 1942.
Scott County Medical Society, February 21, 1942.
Cass County Medical Society, March 5, 1942.
Lincoln County Medical Society, March 5, 1942.
Johnson County Medical Society, March 13, 1942.
Macon County Medical Society, March 24, 1942.
Webster County Medical Society, March 28, 1942.
Morgan County Medical Society, April 1, 1942.
Franklin County Medical Society, April 13, 1942.
Barry County Medical Society, April 18, 1942.
DeKalb County Medical Society, May 1, 1942.
Christian County Medical Society, June 4, 1942.
Dent County Medical Society, July 14, 1942.
Mercer County Medical Society, October 6, 1942.

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Nodaway-Atchison-Gentry-Worth County Medical Society

The Nodaway-Atchison-Gentry-Worth Counties Medical Society held a dinner meeting at the Linville Hotel, Maryville, October 5. Dr. Charles T. Bell, president, presided.

Members present were Drs. J. M. Boyles, Benjamin F. Byland, Leslie E. Dean, William R. Jackson, Robert C. Person and William M. Wallis, Maryville; Charles D. Humberd, Barnard; Henry C. Bauman, Fairfax; John M. Davis, Claude D. Haskell and Clifton M. Waugh, Tarkio; Samuel E. Simpson, Stanberry. Guests present were Drs. Kenneth Murchison, Sidney, Iowa; Benjamin S. Barnes, Shenandoah, Iowa; Charles H. Flynn and Robert J. Matthews, Clarinda, Iowa; Jesse Miller and D. J. Thomas, Maryville, dentists.

The minutes of the regular meeting of April 6, 1942, were approved as published.

The secretary gave a short report on the findings to date of the attitudes of candidates for Congress from the 3rd District of Missouri in the coming November election.

Dr. Francis L. Simonds, Omaha, Nebraska, gave an informal discussion on "The X-Ray Diagnosis of Diseases of the Chest." The lecturer illustrated his able discourse with view-box presentations and comparisons of skiagraphs from a wealth of cases of abnormal and pathologic pulmonary and cardiac conditions. He brought out numerous interesting review points and some new and pertinent diagnostic ideas concerning the normal chest, pneumonia, empyema, pleural effusions, lung abscesses, bronchiectasis, actinomycosis, both metastatic and primary tumor masses and rib fractures. His discussions prompted many questions from his audience.

On motion at 9:30 p. m. the meeting adjourned until 6:30 p. m., Monday, December 7, 1942.

Charles D. Humberd, M.D., Secretary.

BOOK REVIEW

The Care of the Aged (Geriatrics). By Melford W. Thewlis, M.D., Attending Specialist, General Medicine, United States Public Health Hospitals, New York City; Attending Physician, South County Hospital, Wakefield, R. I.: Special Consultant, Rhode Island Department of Public Health. Fourth Edition, Thoroughly Revised with 50 Illustrations. St. Louis: The C. V. Mosby Company. 1942. Price $7.00.

This book on an important and frequently neglected subject deserves the serious consideration by every practitioner of medicine. The author is a clinician and "The Care of the Aged" has been his vocation for many years. The bibliography is complete and he does not hesitate in evaluating the conclusions reached by the many authorities he quotes and to employ his own mature clinical judgment, particularly as regards therapy.

The subject of geriatrics is thoroughly covered, including pathology as well as therapeutics. Every specialist in medicine and surgery will profit by its perusal.

H. W. S.

THE JOURNAL

OF THE

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SYMPOSIUM ON CARDIAC DISEASE

ANATOMIC CONSIDERATIONS OF THE HEART

J. DEVOINE GUYOT, M.D.

JEFFERSON CITY, MO.

The purpose of this brief article is to call attention to some special facts that must be understood to appreciate fully heart disorders and why certain significant changes occur.

The general relations of the heart and those organs which surround it are important, especially when the heart is examined by means of the roentgen ray.

I want to call attention to a few points that have a bearing on diagnosis and which seem often to be confusing.

The heart is a musculomembranous organ lined with endothelium which is continuous with the endothelial layer of the vessels, both arterial and venous, and covered by a serous sac known as the pericardium. The heart is normally a freely movable organ, within certain limits, suspended from the great vessels at the base, supported by the diaphragm below and limited on either side by the lungs, any of which may exert a strong push or pull on the heart.

While the heart may be pushed to one side as a whole by an overdistended lung or drawn aside by pleuropericardial adhesions, its normal movements occur around two axes, one a vertical passing from the base of the apex, the other an anteroposterior presumably through the center of the mass so that the apex and base tip either upward or downward. When so rotated, a marked effect is noted in the electrocardiogram.[1]

With the heart swinging, as would a pendulum, from the great vessels at the base, in tall thin individuals, it takes on a more or less vertical position which has been designated as the drop, ptotic or asthenic type of heart; but as it drops it also makes a rotation on the vertical axis counterclockwise and the interventricular groove moves toward the left, thus bringing more of the right auricle and ventricle to the front of the thoracic cage and as a result the electrical axis of the heart is changed so that the electrocardiogram takes on the character of a right axis deviation or preponderance. In this way a heart which actually might have an enlarged left ventricle may show a normal axis electrically or have the left axis deviation markedly neutralized.

On the other hand if the heart, because of obesity or pregnancy, is raised by an elevated diaphragm, rotating the heart about its anteroposterior axis so that the apex is elevated it also causes some rotation about the long axis (in this case turning so that the intraventricular groove moves from left to right) and then more of the left ventricle is on the anterior surface of the thoracic cage and the electrocardiogram takes on the characteristics of a left axis deviation. Therefore, a right-sided enlargement of the heart may be neutralized largely and some confusion may occur unless this rotation is taken into consideration.

This is of great importance when one is trying to differentiate a valvular defect which should have a right ventricular preponderance, or left axis deviation.

This change can be noted readily if an electrocardiogram is made late in pregnancy and then compared with one made after delivery.

The heart often has been considered as a simple contracting muscle mass but it is a much more complicated affair than that. The heart mass consists of four separate spirally arranged layers of

muscle. The action of the ventricles is not that of a simple squeezing action but rather a combination of a squeezing plus a wringing action.[2]

Careful dissection has shown that the roots of the aorta and pulmonary artery together with the rings of the tricuspid and mitral valves form a sort of central tendon which is the fixed point of the heart. This might well be likened to the central tendon of the diaphragm. This fact can well explain why the heart fails so rapidly in bundle branch block for unless the two ventricles contract synchronously, this fixed point is lost and the two ventricles lose much of their power.

Syphilitic heart disease is usually a disease not of the heart but of the first one or two centimeters of the aorta, just above the valve, and, as is well known, often remains a hidden affair until well advanced. This is because the pericardium does not hug the heart at the base but is attached well up on the aorta and other vessels. Often an aneurysm remains hidden because it attacks the first portion of the aorta and thus is not visible by any means now used. Thus an anatomic fact becomes of great importance.

Again, the aorta lies close to the pericardium whereas the mitral valve is separated from the pericardium by a considerable layer of muscle. This accounts for the greater rapidity with which the pericardium becomes involved in a lesion of the aortic valve than when the mitral valve alone is involved.

The course of the specialized fibers which constitutes the conduction system will furnish rational argument for the involvement of the bundle of Hiss when there is a patency of the ventricular septum for it is in close proximity to the course of the bundle in the septum that the patency usually occurs.

Lastly, there is an anatomic basis for the fact that the left coronary artery is more liable to occlusion than is the right for the left coronary makes a right angled bend almost immediately after its origin and within 1½ cm. of its origin gives off its largest branch which again forms a right angle.

These are but a few of the anatomic facts which, if kept in mind, will enable the physician to predict what is apt and not apt to occur in the diseased heart and to explain the sequence of events which present themselves clinically. A closer study of these features will increase ability to diagnose and give a reasonably accurate prognosis.

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PHYSIOLOGIC CONSIDERATIONS OF HEART DISEASE

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Essentially the heart is a pump and the principal considerations of heart disease can be reduced to simple mechanical terms. These considerations may be anatomic and physiologic, that is, refer to the structure and function of the pump. This paper is concerned with the function. Function depends upon three things: the strength, the proper coordination of the various parts and the rate of contractions of the cardiac pump.

Of these three, the study of the strength of the heart is the most intriguing and also the least understood. The strength of the heart comprises the expenditure of energy by the heart at a given moment plus the reserve, that is, the maximum additional effort of which the heart at that moment is capable. Reference is often made to cardiac reserve as to an absolute value, something like money in the bank upon which the heart can draw on demand. Unfortunately cardiac reserve and total cardiac strength are much less tangible than that. In the person with a normal heart, cardiac strength is practically inexhaustible for on extreme exertion the somatic muscles become exhausted before the heart's strength is spent, thus heart failure rarely follows physical fatigue if the heart is normal. Heart disease affects the heart in two ways: (1) by increasing the work of the heart by forcing it to pump against increased resistance, such as a stenosed valve, or by forcing it to pump the same blood repeatedly as, for example, if a valve is incompetent; (2) by impairing the efficiency of the heart muscle as in the case of hypertrophy of the muscle fibers when the nutrient fluids from the capillaries have increased difficulty perfusing the fiber, by lowering the blood supply by narrowing the lumina of the coronary arteries or, finally, by interfering with the efficiency of the metabolism of the myocardial cell as in the intoxications from infections or edema.

These are, roughly, the principles involved in the loss of cardiac strength which occurs in the course of heart disease. In the study of these processes the greatest difficulty is inability to measure the strength of the heart; that is, there is no adequate functional test of the heart. The closest approach to such a test is still the patient's own history: what can he do now without bringing on symptoms compared with what he could do at a certain previous time under similar circumstances. However, such a method is grossly inaccurate and the strength of the heart is not expressed by any unit of measure. Yet, this much is known about cardiac reserve in heart disease: frequently it varies greatly from time to time and, unless the heart

disease has almost run its course, it can be increased by rest.

In these respects cardiac reserve differs from economic reserves. It is not diminished by reasonable use and the amount present at one time is no indication of what may be found on a subsequent occasion. Yet, in the management of cardiac patients it is imperative to teach the patients to live well within their cardiac reserve.

Another peculiarity of cardiac reserve is that the maximal cardiac effort of which the individual is capable may be expressed in several different ways: physiologically, shortness of breath warns the individual that he is straining the cardiac reserve but, if the cardiac strength is impaired by heart disease, other symptoms may bring the same warning; namely, (1) increase in venous pressure which introduces the train of symptoms of congestive failure and (2) precordial pain. These two are considered specific evidence of heart failure. Increase in venous pressure arises from failure on the part of the heart to shift the load of blood which is being offered to it. In early failure this happens only on exertion. As soon as the effort is over the heart begins to catch up with the extra load which has accumulated and, if it is but slightly impaired, the score is soon evened. As the disproportion between this extra load and the strength of the heart grows bigger, it takes less effort to produce a "deficit" and it takes longer for the heart to eliminate it. At last it fails to do so before the next necessary effort adds to the deficit. Then blood accumulates, first in the natural blood depots and later elsewhere in the soft tissues of the body. If this process is understood, one understands at once two important facts about congestive failure.

The cardiac output in congestive failure is frequently normal at rest. This was unexpected for it was thought that the enfeebled heart would have a diminished output. Not until the final stages of congestive failure is the heart unable to accomplish a normal resting output, but it fails to meet in full the demands for an increased output, arising from effort. If the body is at rest, the heart is given the best possible chance to marshal such remaining reserve strength as it still possesses in order to even the score. Rest is, therefore, prescribed as the most important means of restoring the failing heart for, when it has eliminated its deficit, there is hope that it may recover some reserve power. The amount of this reserve power determines the amount of effort which may be permitted a patient who recovers from heart failure. If the heart can do no better than effect a normal resting output, or less than that, recovery from the congestive failure is less likely.

There is no demonstrable anatomic change in the heart muscle which informs one whether or not a given heart muscle is failing. The process of failure is associated with biochemical changes in the heart muscle. Detailed discussion of these would lead too far afield. Among other things these processes depend upon an adequate supply of nutritive fluid and of oxygen. Two mechanisms are known which interfere with this function. Cardiac hypertrophy is achieved by overgrowth of the individual muscle fibers. The nutrition of the heart muscle is achieved by the perfusion of nutritive fluid from the surface to the center of the fiber. The larger the fiber the more difficult the perfusion and hence the nutrition. It thus is seen that myocardial hypertrophy, beneficial in moderate degrees, carries with it a disadvantage which increases, slightly at first, but at accelerated rate in marked hypertrophy.

The second mechanism is disease which tends to obliterate the lumina of the coronary arteries and thus allow less space for the blood to pass. This may so interfere with cardiac nutrition that muscle may be replaced by fibrous tissue; in its extreme degrees myocardial fibrosis contributes to cardiac failure.

The heart is a complicated pump consisting of various chambers. It is essential for their proper working that these parts act in coordinated fashion. For this purpose the heart possesses a mechanism which originates and conducts the impulses to contract. This system is fundamentally automatic but it is controlled largely by the sympathetic and parasympathetic nervous systems. Occasionally this system functions in a disorderly manner and one or another chamber of the heart is made to contract prematurely (extrasystoles), or too late or not at all (partial or complete block). Occasional premature contractions or moderate degrees of block do not have a significant effect on cardiac function but if premature contractions become too frequent and, especially if they originate in different parts of the heart, they may interfere seriously with its function, and if heart block becomes complete life will depend upon the automatism of the lower centers of impulse formation.

Then, again, impulse formation may become completely upset and the fundamentally regular and well paced rhythm may be replaced by a completely disordered action of the heart. Fibrillation and flutter fall into this group. Neither of them is incompatible with reasonable cardiac function but they both possess a tendency to exhaust the heart with rapid disorderly action, especially if the myocardium is otherwise damaged as is so often the case. Consequently, whenever possible, they should be either controlled or abolished.

Finally, the cardiac pump works best at a certain rate of contraction. It has wide powers of accommodation. If the heart slows down, other things being equal, it will pump more with each stroke. Actually, this compensatory process works even at rates of 30 per minute or less. If the heart has difficulties in carrying its load, either because it is less efficient or because the load is increased,

it may respond by speeding up its rate of contractions. By so doing, it increases its efficiency up to a point beyond which the filling of the chambers in diastole begins to suffer and the recovery phase of the heart becomes insufficient. In fact, if the process is pushed beyond a critical level, of about 160 to 180 contractions per minute, the heart may develop congestive failure.

These are the fundamental physiologic principles which must be understood if one is to treat intelligently patients with heart disease.

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PROPER NOMENCLATURE: ITS VALUE IN THE MATTER OF STATISTICS

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The subject of "Proper Nomenclature; Its Value in the Matter of Statistics," happily, has had the earnest thought of a group of the finest students of cardiology in the country and after prolonged study a committee of the American Heart Association has issued a brochure on this subject.

Basically, of course, nomenclature must be accepted and used universally to be of value statistically. Nomenclature is defined in some dictionaries as a set or source of names or terms used in a particular science or art and, basically, the particular nomenclature must be universally accepted and used to enhance its statistical value. The committee of the American Heart Association has made an attempt to coordinate diagnostic terms with those of the accepted standard classified nomenclature of disease. Therefore, this subject is more than timely. Outside of those specializing more or less in cardiology, I believe the rank and file of physicians have not been in the habit of using any particular form in setting down diagnoses and nomenclature, therefore, has been more or less individual.

As set forth in the brochure published by the American Heart Association, the problem is approached in a more orderly fashion: (1) the etiology of the diseased heart is considered; (2) the anatomic changes that occur are noted and set down; (3) physiologic behavior is recorded; (4) the cardiac insufficiency is specified as to type and degree; (5) therapeutic response of the diseased heart is observed.

One can see the advantage of this plan in approaching the study of a diseased heart. It helps the physician, as he sits with his patient, to proceed in an orderly manner in his examination and, by getting into such a habit, he is less likely to miss some obscure but important finding and it likewise permits an assembling of all observations so that one's final conclusion will be more logical and inclusive.

In a vast majority of instances, the history alone will determine the etiology. In other cases, more elaborate examinations should be made. Various laboratory procedures must be instituted such as blood studies, including of course careful cytologic and serologic tests, metabolic rate and other pertinent laboratory examinations which will help catalog the types of heart disease with which one is dealing.

By far the greater number of cases will fall etiologically under one of the following headings: arteriosclerotic, hypertensive, rheumatic and syphilitic types of heart disease. While these groups predominate, one must not forget that there are other conditions that cause heart disease and careful search also must be made for the etiologic factor. So, I would urge a most careful evaluation of the history of the individual and utilization of all diagnostic procedures so that one's final conclusions can be set down with a greater degree of positiveness.

In considering the anatomic changes of the heart, of course, the size and the position, the damage to all the component parts of the heart including the great vessels must be considered. If possible, enlargements should be designated as hypertrophies and dilatations or, when one is not sure, the simple term "enlargement of heart" is certainly inclusive and permissible. Structural change must be noted as, for instance, coronary occlusions with resultant infarcts. Not only should they be so designated but, if possible, that portion of the heart most affected should be mentioned. Valvular lesions likewise should be specifically identified whenever it is possible to do so and, in diagnosing the various murmurs, a specific nomenclature should and can be employed. First, the site of maximum intensity should be noted. The intensity, the pitch, the quality, the duration and time should be used as a guide in describing the lesion. As a rule, the anatomic changes can be determined definitely by the employment of the ordinary physical examination as follows: first, locate the apex of the heart and then, by percussion, determine the outline and, by auscultation, note the various adventitious sounds, remembering in the description to adhere as closely as possible to the nomenclature mentioned. At times, of course, it is impossible by physical examination to demonstrate all of the changes. It is in such cases that precision instruments, the roentgen ray and the electrocardiograph, will be of help.

The physiologic behavior of the heart must be approached first from the standpoint of mechanism. The various arrhythmias should be noted. Ordinarily, these irregularities can be determined clin-

ically. However, there are times when a bedside examination will not be sufficient. It is then that the electrocardiographic tracing will be needed to identify the arrhythmias positively. I well remember cases with ectopic beats, originating in multiple foci, which so simulated auricular fibrillation that I would defy anyone to differentiate the arrhythmia without the aid of the electrocardiogram. I am sure all practitioners have had this experience and it is helpful from a therapeutic standpoint to be positive of the type of arrhythmia with which one is dealing. However, in a vast majority of instances, as I said before, the irregularities can be determined without the aid of precision instruments.

Secondly, valvular insufficiency should be specified. The criteria for the various valvular lesions are, as a rule, fairly simple. I feel that the primary lesion always should be described and accentuated because nearly always there are secondary insufficiencies that arise in the process of the disease.

Thirdly, there are various clinical syndromes, as:

1. Adams-Stokes' syndrome.
2. Anginal syndrome.
3. Signs of cardiac insufficiency as: (a) dyspnea, (b) fatigue, (c) orthopnea.
4. Pulsus alternans.
5. Paroxysmal dyspnea.
6. Paroxysmal pulmonary edema.

The functional capacity of the heart is best ascertained by the ability of the individual to carry on either physically or emotionally. The two most common types of failure are: (1) congestive failure and (2) anginal failure. The failure is thought of then in degrees, the base being the normal ability of the individual. The four degrees range from: first, heart disease with no limitation of activity; second, heart disease with slight limitation; third, heart disease with marked limitation of physical effort, and fourth, complete inability to carry on other than at rest.

Therapeutic classification is not intended to intrude upon the physiologic criteria which have been discussed in the preceding paragraphs but rather to be an index to the amount of physical activity to be permitted the cardiac patient. I give the classification as it is set down in the brochure:

Class A. Patients with cardiac disease whose physical activity need not be restricted.

Class B. Patients with cardiac disease whose ordinary physical activity need not be restricted but who should be advised against unusually severe or competitive efforts.

Class C. Patients with cardiac disease whose ordinary physical activity should be moderately restricted and whose more strenuous habitual efforts should be discontinued.

Class D. Patients with cardiac disease whose ordinary physical activity should be markedly restricted.

Class E. Patients with cardiac disease who should be at complete rest, confined to bed or chair.

In concluding this résumé of the subject, I offer no apology for its brevity or for its lack of originality but hope that the reader will be inspired for his own good and for the betterment of statistics to make use of the brochure "Nomenclature and Criteria for Diagnosis of Diseases of the Heart" published by the American Heart Association.

Physicians and Surgeons Building.

THE CORRECT METHOD OF EXAMINATION OF THE CARDIAC CASE

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The examination of the cardiac case in practice is, perhaps, one of the most important and essential examinations which the physician is called upon to make in routine work. The patient who presents himself for examination, if in private practice, has come because he has experienced some embarrassment which he feels is a result of cardiac disease or to satisfy his own mind that he is physically fit.

Many patients have a cardiac complex and it is difficult sometimes but very essential that one is careful in the examination to determine whether or not the patient really has a normal heart or has a pathologic condition of the heart. If a patient becomes heart conscious, it sometimes taxes the utmost skill as an examiner and as a psychologist, if the man is normal, to assure him that he has no cardiac damage. If the patient is allowed to go on feeling that he is embarrassed or that he has a damage to his heart, he, in many instances, will become so depressed mentally that it will interfere materially with his following his usual line of work to advantage. Therefore, it is important for the physician to pass his verdict to his patient if he can be reasonably certain that he does not have an impaired heart. This is a very satisfying experience to the patient. Often physicians are reluctant to express that opinion; however, I believe that one should, if possible, make his examination and observations with sufficient confidence that he may pass this opinion to the patient. If one is unable to do this, he may cause the patient to become a cardiac neurotic with uncertainty as to his future.

Then there is the patient who really has a heart disease. He also should be advised and told in simple English so that he will not become too heart

conscious and, too, that he may take the proper physical care of his body if the condition allows him to work and continue with his routine occupation. So many patients really do an injustice to themselves because they are either sensitive that something may be found which will interfere with them holding a position or they themselves do not care to know the actual facts. This type of patient, of course, many times will do himself an injustice in continuing without medical care and advice.

So the physician is called upon to weigh the facts, to know the condition of the patient and advise him as to the best course to pursue that he may protect himself in the future. In weighing these facts, it is necessary for the individual physician to meet the individual patient and to study his condition thoroughly and to make the proper physical examination, observing the patient from a neurologic as well as physical standpoint in order to advise the patient as to his future care.

It is only a few years since the introduction of the roentgenogram and the electrocardiograph; in fact, it has been introduced since many who are now in active practice studied medicine. These procedures have brought a refinement and precision in cardiac diagnosis which the physicians of generations past did not possess; but with these refinements one must not lose sight of the physical examination and thorough investigation of the cardiac patient. These are even more important today since there are more patients who are cardiac conscious with no pathologic condition and more patients with symptoms who have real cardiac disturbance. This has been impressed upon people by the lay press because patients all know that cardiac deaths now rate first and they know that so many of their friends have died from this disorder.

FAMILY AND PERSONAL HISTORY ESSENTIAL

One first should inquire into the family history. One should inquire into the causes of death of the members of the family and particularly whether or not they have died from some of the common types of heart disease or have had hypertension, chorea, thyroid or rheumatic heart disease. One should review the history of the patient, whether or not he has had rheumatic fever, syphilis, chorea, hypertension or hyperthyroidism, streptococcus infection, anemia, diabetes, nephritis, asthma (allergy) or any illness which might be connected with the present difficulty. In reviewing the patient's past history, one should determine whether or not the patient had any embarrassment with his heart during childhood; if he was able to do the usual things which his playmates did; if he led a strenuous athletic life or whether he was forced to a quiet life; what life he has led in recent years, and what has been the type of work he has carried on and has this work embarrassed him to any degree. All these are important factors and there are many others which the careful examiner will remember. The age and sex of the patient are important; in instances of rheumatic heart disease and congenital heart defects they occur most frequently in the first twenty years of life. Syphilitic cardiovascular, hypertension and coronary diseases are encountered most frequently in the later decades of life. Rheumatic heart disease is found more often among women, while coronary and syphilitic heart disease is more common among men. The patient's occupation also is important as well as the location in regard to climate. Coronary disease is found most often among people who undergo unusual stress or who have occupations which have great responsibility. One rarely sees coronary disease in a common laborer. It is important that one gets a careful history of the patient's symptoms, particularly the onset and the progression, his periods of improvement or relapse, the history of a prolonged attack of pain in the region of the heart and the symptoms which the patient has presented, if any, since that attack.

PRESENT ILLNESS

In my early career I was taught by a very able physician to allow a patient to tell his own story and never to forget to allow him to tell it in his simple language, giving his symptoms and why he sought a medical examination. Some patients, of course, will give a lot of description which is of no value but, by asking appropriate questions, one will be able to weave a story and derive many facts from the patient's personal story.

While one is weaving these facts together, he should not forget inspection of the patient. The appearance presented by the patient suffering from cardiac disorder will vary widely, yet a careful observation of the facies will sometimes disclose evidence which is of value in the diagnosis. For instance, in mitral stenosis, one may notice a cyanotic flush of the face associated with dilated capillaries in the skin of this area. In aortic stenosis and aortic insufficiency one notices a pallor of the face which is exaggerated by well marked cyanosis of the lips. Any physician who has seen a patient with a coronary thrombosis will never forget the extreme anxious expression of the face and the ashen pallor which may or may not be associated with pain. The patient with congestive heart failure usually will present a puffiness of the face with varying degrees of cyanosis. The soft tissues may present evidence of congested appearance. Dyspnea, if noticeable, should be checked by making inquiry as to whether or not it is related to effort and if exertion brings it on and, if so, how much effort does it require to produce the dyspnea. This gives some idea as to the functional capacity of the heart. Paroxysmal dyspnea of the cardiac disease is very important. It usually comes on at night and may last from a few minutes to several hours. These patients should be regarded very seriously and they should be studied carefully, es-

pecially if this condition presents itself in a person who previously has had no difficulty.

Orthopnea will be noticed in most patients who have a severe dyspnea. This gives additional evidence of the cardiac capacity. Cough is another symptom which may be noted and the type depends on the acute or chronic congestion.

PALPITATION—CARDIAC MECHANISM DISTURBANCES IN GENERAL

Palpitation is an abnormal rhythm of the heart's beat. These are the questions which must be answered: Is it forceful; is it rapid, regular or irregular; does the rate start abruptly and end abruptly? For instance, the common extrasystole is the common type of palpitation of which many patients complain; however, other patients have these extrasystoles without any symptoms. Paroxysmal tachycardia is another form which often may be recognized from the patient's description of it. Serious mechanical disturbances are the various grades of heart block as auricular flutter, auricular fibrillation and alternation. Decompensation may follow or accompany these various serious cardiac mechanical disturbances.

Auricular flutter usually is associated with a rapid ventricular rhythm and sometimes is difficult to distinguish from auricular fibrillation. Auricular fibrillation usually is described by the patient as a tumultous heart action and he usually notices its irregularity and there is a total irregularity of rhythm and force to the heart beat.

PALPATION

One usually begins by feeling the pulse, noting the character, the strength, uniformity or alteration of the rate. By checking the apex beat with the radial pulse, one may check a pulse deficit which is very valuable information. Palpation of the precordial area of the chest usually will reveal any abnormal pulsation or thrill. A thrill is usually the palpable counterpart of a murmur. The position of the apex impulse should be localized and decision made as to whether it is forceful or weak. The abdomen should be palpated for an enlarged liver or spleen or fluid which may indicate an abdominal ascites. Any enlarged veins should be noted and examined, especially for presence of thrombosis.

PERCUSSION

Percussion of the chest is performed next and the area of dullness of the heart should be outlined, particularly the dullness to the right and left on the right border and the apex. The size of the aorta also should be determined. The abdomen should be percussed for dullness in the flanks or shifting dullness which may denote ascites. A dullness of the liver area and the spleen also should be percussed.

AUSCULTATION

There are normally two and sometimes three heart sounds heard. Auscultation should be done carefully over various points of the precordium. The rate of the heart beat is the first thing to note and, also, whether the rhythm is regular or irregular. The character of the rhythm should be noted. Following this the heart sounds in the specific areas should be studied and any abnormal sounds should be detected. Sometimes a bundle branch block may be detected by a rumbling sound produced by the late contraction of one ventricle. Occasionally one hears a to-and-fro friction sound which is not synchronous with the heart cycles and the heart sound is muffled or distant which may indicate pericarditis.

MURMURS

Of the abnormal sounds one may be confronted with murmurs. They are significant in so far as they indicate the existence and the nature of a valvular or structural defect. In the memory of many men now active in the practice of medicine the teaching of cardiology was principally the significance of murmurs. It is not my idea to forget these but to place them in their proper relationship in the evaluation of the many conditions which may affect the heart. The heart may show failure as a result of the damage of the myocardium failing to meet the work which is required of it and this in turn may be the result of hypertension, valvular defects, coronary disease or numerous other conditions.

Systolic murmurs are not always easy to evaluate. Much depends on the other signs such as cardiac enlargement or diastolic murmurs and on the location and intensity of the murmur. Functional systolic murmurs are usually soft and blowing. Systolic murmurs which are loud and which are heard best at the apex usually mean organic disease. Systolic murmurs that are confined to the aortic area are usually indicative of disease of the aorta; namely, aortic stenosis.

AORTIC DISEASES

The typical aortic systolic murmur which is indicative of aortic stenosis is heard in the second right interspace. Transmission may be into the carotids or over the whole precordium.

Aortic regurgitation as indicated by a diastolic murmur which is heard in the second right third and fourth intercostal spaces. Diastolic murmurs are much rarer but are much more important.

Mitral stenosis is indicated by a rumbling late diastolic murmur heard at the apex. It may be accompanied by a thrill.

Mitral regurgitation is indicated by a systolic murmur that is loud and long and which is transmitted to the region of the axilla or scapula.

Since tricuspid and pulmonic diseases are comparatively rare, I will not mention these except to say that they are seen in only a few cases.

SUMMARY

One should be able to classify his findings. In many instances one will be able to make a diagno-

sis from the findings of the five senses not forgetting blood pressure, particularly the systolic, and pulse pressure readings with the regularity and volume of the pulse. Even though there are available other mechanical means for cardiac examination, the physician should use his knowledge first and then the other mechanical means such as electrocardiography, orthodiography, teleoradiography or fluoroscopy, simply to check his findings and verify the cardiac condition and correlate these findings with those which he has already obtained from his physical examination. There are many conditions in which these mechanical methods are necessary to confirm or classify the diagnosis of cardiac disease; for example, to confirm or make a diagnosis of auricular fibrillation, auricular flutter, various types of block, various types of tachycardia, various types of premature contractions, coronary disease, extent of myocardial damage, the size and shape of the heart borders, in relation to normal and the extent of damage to the conduction mechanism of the heart.

607 Main Street.

THE RHEUMATIC HEART

COMMON AND UNCOMMON MANIFESTATIONS OF THE RHEUMATIC STATE IN CHILDHOOD

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Rheumatic heart disease has become one of the most important and difficult problems of medicine today. Children are particularly susceptible to this disease, over 70 per cent of cases occurring between the ages of 4 and 30 years. It is extremely rare in children under 4 years of age although cases are reported in which the disease has been present in utero or has occurred in the first three years of life. As a rule, rheumatic fever begins between the ages of 7 and 10. After the twentieth year of life, the beginning of the disease is distinctly unusual. The disease occurs about equally between males and females and seems to have no predilection for race. Climate certainly plays an important factor as it is not as common for the disease to occur in the semitropics or the tropics. As a rule, the maximum number of cases occurs in the colder months. Among the precipitating causes of acute articular rheumatism, repeated chilling in continued cold and damp weather appears definitely to influence the development of the disease.

Recent investigation at the University of Kansas under the direction of Dr. Don Carlos Peete suggests that there is a definite relationship between diets deficient in calcium, phosphorus and vitamins A and D and the incidence of rheumatic fever. A great deal of work has been done to prove that this disease is due to a definite organism such as streptococcus or hemolytic streptococcus, but proof has not been forthcoming. Recently the men interested in this problem have been swinging more to the theory that rheumatic fever is a manifestation of a virus infection. In the last few years, with more intensive study of virus infection and the manifestations of virus pneumonia, the theory definitely is gaining ground. Certainly at the present time, the theory of virus infection is as good as any other. The frequent relationship between acute polyarthritis in children and recurrent common colds, which now are thought to be a virus type of infection, is without question. It has been noticed also, in the last few years since the advent of the sulfamiracle drugs, that the administration of these drugs in appropriate dosage has not affected materially the course of the disease in any way. In fact, in my own observation, cases have been materially worse after the institution of one of the sulfa drugs. This same observation has been made in other types of virus infection such as virus pneumonia and certain types of encephalitis.

It is well to keep in mind the protean aspects of this disease and the prodromal or mild symptoms which may persist for many months or even years before the actual evidence of rheumatic heart disease is discovered by examination. Physicians too often err in thinking that rheumatic fever and joint infections are synonymous. It is the experience of many physicians that the rheumatic state without joint infection may precede an acute cardiac attack by months or even years. "Growing pains" are not uncommon in healthy growing children, but the complaint by the child of "growing pains" should always indicate to the physician the necessity for careful examination and observation over a period of time as not a small per cent of these children will demonstrate, later in life, evidence of rheumatic carditis. Intermittent attacks of abdominal discomfort, with low temperature, not severe enough for the diagnosis of an acute appendicitis but severe enough to cause concern to the family and to the physician, especially if localized in the lower right quadrant and with a white count consistent with a subacute appendicitis, are a not infrequent sign of rheumatic fever in younger children. I have at the present time three children whose appendices have been removed because of this complaint and the appendices obviously could not have been the cause of the symptoms presented by the patient and the patients later developed full blown mitral stenosis. Frequent nosebleed in children without adequate

cause being discovered by careful nasal examination with nasal speculum is suggestive and warrants careful study of the individual child presenting this symptom. Close association between chorea and choreiform types of seizures and the rheumatic state and rheumatic fever has been recognized for years. It is safe to say at the present time that chorea is considered to be an evidence of the rheumatic state or rheumatic fever. A child demonstrating this symptom complex should be considered as having rheumatic fever and so treated. Mild types of chorea may be overlooked and the physician should be on the alert with the knowledge that even a mild attack of chorea may be followed by a severe rheumatic heart disease. Persistent tachycardia, with no cause discovered in examination, and with bouts of low grade fever without any other manifestation of rheumatic fever, should be considered rheumatic fever if all other examinations are normal. "Joint" infection and "joint" symptoms in children are not nearly as frequent as many physicians believe. I have been unable to obtain a history of joint symptoms in many of the children with rheumatic fever who demonstrate a definite rheumatic carditis or valvular disease. On the other hand, I have been impressed with the frequency in the history of the minor patterns which have been mentioned. It is well to bear in mind that the rheumatic infection is prone to pick out the serous coats of the body leadng to unexplained pleurisy, pericarditis, peritonitis, fascitis and fibrositis and their detection should suggest an attempt to prove the cause of such developments with careful and repeated examinations of the heart.

Certain examinations are of definite help in establishing a diagnosis in this class of patient. Among them is a sedimentation rate which is usually moderately rapid during one of the exacerbations but may be fairly normal between times. The blood count usually will show an anemia, the white count may be slightly high ranging from 9,000 to 11,000, hardly ever higher than 11,000, and the differential count is more apt to show a relative lymphocytosis than an increase in the polymorphonuclear percentage. An electrocardiogram may be helpful, especially in establishing a normal or abnormal P-R Interval. The presence of a P-R Interval of .22 or more in children makes it much more probable that the patient is having a mild rheumatic carditis. In several instances I have been surprised to find definite evidence of infarction with a type of tracing almost identical with a tracing of coronary occlusion. The presence of a systolic murmur, although slight, in these children always should be analyzed carefully and considered not only at the immediate time but for some time in the future.

Another finding which I have noted a number of times in early cases of suspected rheumatic fever later developing mitral stenosis is a type of roughness of the mitral first sound which resembles a type of creaking noise produced by the twisting of a dry leather strap. This roughness or sound is quite evident for some time and has been observed up to the present time in four cases, preceding by several weeks to several months the development of a definitely recognized mitral murmur and later the definite mitral stenosis. Whether or not this sound is an atypical pericardial friction rub is still an open question.

Acute rheumatic infection is not particularly difficult to diagnose. The symptoms usually include those of any infection and depend to some extent on the reaction of the individual to the infection. Joint pain, tenderness, swelling, heat, redness, muscle aching, sometimes chorea or choreiform movements, sweating, weakness, effort syndrome, general malaise, nausea, occasional nosebleed, loss of color and loss of weight are all symptoms of an acute rheumatic infection. Naturally their severity varies with the virulence of the infection and the resistance of the patient. Dr. Paul White has said that the older the individual, the more the joints suffer and the less the heart; the younger the subject, the more the heart suffers and the less the joints. This is undoubtedly correct. All gradations of the symptoms enumerated may be present or absent. A virulent polyarthritis in children is relatively rare. It is more common for the joint symptoms to be mild or hardly noticeable, accompanied by slight fever, and not always of sufficient discomfort to cause the child to stop school or for the family to consult a physician. Such a condition is fairly common and usually is associated with a low grade rheumatic heart infection which has manifested itself for sometime by a loss of energy, certain amount of ill health, slight exacerbation of temperature, with or without nosebleeds, chorea, abdominal bouts of discomfort simulating appendicitis, growing pains and the other symptoms previously discussed. In these cases, rheumatic nodules are important signs and their presence indicates that the infection is still active. As long as they are found or persist, the patient should be treated as still having rheumatic fever. In my own experience, these nodules are not as common in the Missouri Valley as they are in the New England Coast area. They may vary in size and shape and usually are found subcutaneously loosely attached to tendon sheaths, periosteum, joint capsules, over the elbows, knees, ankles, skull, fingers, wrists, toes and shoulders and have a tendency to occur more or less symmetrically on each side of the body. Skin lesions are not particularly uncommon manifestations, the most common of which is the erythema multiforme. Dr. White states that they occur in about 15 per cent of the cases at some time or other. He believes that this condition is more apt to appear in patients who have had or later develop rheumatic nodules. Occasionally petechiae may develop and not infrequently this is an indication of a rather severe type of infection. At the present time, while occurring in rheumatic infection, this is thought also to be due to the lack of vitamin C in the dietary procedure of these children. Erythema nodosum, an-

gioneurotic edemas, urticarias and purpura hemorrhagicas occasionally are found but in my experience are exceedingly rare. They should be thought of so that they do not confuse the physician by their development.

The onset of rheumatic heart disease frequently is not accompanied by subjective symptoms, and may be suspected only by a sudden fresh rise of temperature and later some tachycardia, palpitation, breathlessness and indefinite pain in the cardiac region. This condition may be recognized by careful and repeated examinations of the heart. A roughness of the mitral first sound or a creaking type of sound previously described always should make the physician suspicious of the beginning mitral involvement. The two most common valves attacked are first, the mitral and, second, the aortic. In the mitral area, the early murmur is usually a soft blowing systolic murmur heard best at the apex. This type of blowing murmur may be present for a considerable time, even months, before careful timing will establish it as slightly presytolic. In the aortic area, the first murmur heard may be a slight diastolic blow or may be a combined murmur, mildly systolic in type, followed by a diastolic murmur. When once these murmurs are heard, they probably indicate the laying of a foundation of chronic endocarditis and a valvular lesion which will last for life. Rheumatic pericarditis is much less frequent than endocarditis and can be recognized only by the appearance of a characteristic friction rub or murmur. When heard or suspected, careful watch should be kept as to the possibility of developing a pericardial effusion with a large amount of exudate and the accompanying symptoms of extreme dyspnea and cyanosis. The myocardium almost always is involved as can be demonstrated not infrequently by electrocardiogram examination and by the pathologic section after autopsy. The characteristic findings are those of Aschoff bodies which Coburn states are a late reaction and probably a part of the process of recovery and repair. He states that the earliest tissue changes are those of necrosis and a slight tendency to hemorrhage and that this is the cause of the myocardial weakness and the tendency to acute dilatation in the seriously sick child. This dilatation may lead to sudden death from heart failure, to more or less permanent cardiac damage with consequent enlargement or, again, it may be followed by a good recovery. It is probably correct to state that whenever an endocarditis is present with valvular lesions developing, a pancarditis is present or becomes superimposed.

The cardiac effects produced by the various lesions such as mitral regurgitation and later development of a mitral stenosis and, in the case of the aortic valve, the aortic regurgitation and eventually aortic stenosis, are the result of the stress placed upon the heart by the lesion. Detailed discussion on the effect of these valvular defects cannot be undertaken in this paper. It is probably sufficient to call attention to the fact that in the mitral regurgitation, chief stress is first upon the left auricle which can become dilated and hypertrophied and then, by back pressure to the right ventricle with consequent hypertrophy, as a result of extra work due to the increased pulmonary pressure and, eventually, hypertrophy and dilatation of the right auricle. The left ventricle remains relatively unaffected and may at times become actually smaller than normal. This sequence of events is accentuated further if the valve becomes stenotic and additional stress is thrown upon the left auricle due to the extra work occasioned by forcing blood through a narrowed mitral valve to the left ventricle. This change is recognized readily by roentgenogram or roentgen ray examination as demonstrated by a prominent or enlarged pulmonary conus, and evidence of hypertrophy of the left auricle, the right ventricle and eventually the right auricle. In the aortic lesion from rheumatic infection, either in the regurgitation or the later aortic stenosis, the chief stress is upon the left ventricle which hypertrophies and enlarges in all diameters. This gives a characteristic picture of a large left ventricle or the bovine type of heart and is to be differentiated, of course, from the enlargement of the left ventricle due to long-standing essential arterial hypertension. It must be kept in mind that in the mild lesions of only slight valvular incompetency, these charactertistic physical effects would be lessened accordingly and may be so slight in some cases as to be difficult to detect.

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CLINICAL CONSIDERATIONS OF PERICARDITIS

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For years clinicians have realized that the appearance of pericarditis in cases of heart disease may indicate an extension of a recognizable fundamental lesion or may reveal the presence of a cardiac lesion which is obscure. Occasionally pericarditis develops as an extension of pleural or pulmonary disease without any underlying heart lesion. Whatever the cause, pericarditis is rarely a primary condition. The extensive literature on pericardial disease repeatedly stresses the importance of early recognition, but the diagnosis is frequently difficult; indeed, the first inkling of the presence of pericarditis often arises at necropsy. In this paper, some of the commoner forms of peri-

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carditis will be reviewed briefly, together with the more reliable diagnostic criteria and the therapeutic considerations which are particularly helpful in the management of cases in general practice.

Acute Pericarditis.—Acute rheumatic pericarditis (a fibrinous process) is one of the commonest forms of pericarditis. It may be part of a pancarditis, but occasionally it occurs when there are no objective signs of underlying myocardial or endocardial disease. Developing usually ten day or two weeks after the onset of rheumatic fever, the pericarditis is accompanied by an accentuation of symptoms already present. The fever becomes higher; the heart rate increases and there frequently develops a dry, hacking cough. Some patients complain of pain about the region of the sternum or epigastrium, often sharp and intermittent in character. Occasionally, pericarditis may cause pain simulating the pain of myocardial infarction although usually of lesser severity.[1] Acute rheumatic pericarditis may be followed by effusion into the pericardial sac. The fluid often accumulates rapidly and not infrequently results in acute cardiac compression.

Another common form of acute pericarditis is that associated with the terminal stages of chronic glomerulonephritis. It appears insiduously in patients with renal failure and marked nitrogen retention. It frequently is observed with the appearance of "uremic frost." Uremic pericarditis is an acute fibrinous or serifibrinous process. The nature of the condition is not well understood. Frequently it seems to be due to a terminal infection but more often no organisms can be found in the pericardium at autopsy.[2] The condition is important only from the standpoint of prognosis for it is a terminal complication.

Not infrequently, acute pericarditis is observed following myocardial infarction. The pericarditis occurs only if the infarct extends to the epicardium;[3] if the muscle immediately below the pericardium is free of infarct, no pericarditis develops. The final result is thickening of the pericardial layers and fusion, thus forming a thick overlying protection for the thin ventricular scar.[4] This form of pericarditis is not attended by an increase in symptoms; pericardial effusion rarely complicates the lesion.

Pneumococcus lobar pneumonia often has been complicated by pericarditis,[5, 6] particularly when empyema also has developed. Peculiarly, the empyema associated with pericarditis is more frequently on the left side.[6] Pneumococcus infection of the pericardial cavity is a purulent process and is a dangerous complication. The occurrence of pericarditis should be anticipated whenever empyema follows pneumococcus pneumonia; indeed, the possibility of the development of pericarditis should be borne in mind in any case of lobar pneumonia. The patient is always desperately ill and the diagnosis must be established as promptly as possible.

Occasionally, an acute pericarditis develops in the wake of pneumonias of streptococcal or influenzal origin. Such cases were common during the pandemic of influenza in 1918. Staphylococcus pericarditis may occur as a complication of osteomyelitis of the thoraic cage or vertebrae.

Tuberculous pericarditis may follow pulmonary, plural or mediastinal tuberculosis. It develops much as a tuberculous pleuritis; there may be a fibrinous or serofibrinous exudate which is later followed by a large, slowly forming, recurrent pericardial effusion, requiring repeated paracentesis. The fluid is sterile to culture and ultimate diagnosis will depend upon guinea-pig inoculation. While the clinical onset of tuberculous pericarditis is often acute and, therefore, simulates an acute pericarditis, the lesion itself is chronic and may have been quiescent for a long period. It is possible that many cases of tuberculous pericarditis, of lesser severity, remain unrecognized and years later may cause chronic adherent pericarditis.[21]

With the development of acute fibrinous pericarditis, a friction rub frequently is heard. Its presence is diagnostic of pericardial inflammation and it is the most valuable single physical sign of the condition. Pericardial friction rubs are ordinarily not difficult to recognize since they are characterized by a to-and-fro grating sound which seems close to the ear. Unlike murmurs, they may be modified by changes in the position of the patient. Loud, leathery rubs *(bruit de cuir neuf)* are often heard over the entire precordium, but these, and rubs of lesser intensity, generally are heard best along the left sternal border. Difficulty in differentiation may arise when the rubbing sounds are fine; in such instances, the friction rub may resemble a murmur closely. In these cases it may be necessary to defer final judgment until the sign can be further observed. In the presence of mitral or aortic valvular murmurs, the recognition of pericardial friction rubs is often difficult. When the pericardial inflammation is localized to the lateral or posterior aspects of the heart, rubs may be inaudible and the pericarditis may escape notice entirely.

Another valuable physical sign, occurring most frequently in acute rheumatic pericarditis, is a small area of dullness, bronchial breathing and egophony below the angle of the left scapula (Ewart's sign).[7] In cases of suspected rheumatic pericarditis a careful search for this phenomenon should be made. Ewart's sign may appear before a friction rub; occasionally it is the only objective evidence that pericarditis is present. As the sign simulates that of pulmonary consolidation, it should be evaluated with great care. Ewart's sign has been attributed to a pneumonitis contiguous with the diseased pericardium, or, to a small collection of fluid (posteriorly) causing pulmonary compression.[7, 8]

Electrocardiographic study may be of value in the early recognition of acute pericarditis. Noth and Barnes[9] have pointed out that certain changes in electrocardiograms frequently occur in the first stages of the disease; these changes are often transient and sometimes escape notice entirely.

Pericarditis with Effusion.—If a fibrous pericarditis fails to heal promptly, it will become compli-

cated by an effusion into the pericardial space. The effusion may be serous, purulent (as following pneumococcus pneumonia and empyema) or serosanguinous. Very commonly, pericardial effusion follows rheumatic fibrinous pericarditis. The collection of fluid may be massive and quick to form and, as mentioned before, sometimes results in acute cardiac *tamponade*. Moderate effusion occurs as a part of generalized anasarca, as in the nephrotic phase of chronic glomerulonephritis, or in any other condition in which the serum proteins are lowered significantly. Transudation into the sac also may accompany cardiac decompensation. The slowly recurring, massive effusions of tuberculous infection and the purulent fluid of pyopericardium have already been considered. Uremic and infarction pericarditis are seldom followed by exudates.

Pericardial effusion is not always easy to recognize clinically. However, there are a few rather constant symptoms and signs which may be worthy of review. If the amount of fluid is sufficient to embarrass diastolic expansion of the heart or to exert pressure on the great vessels—both of which curtail cardiac output and induce peripheral venous congestion—moderate or extreme dyspnea and orthopnea occur. Occasionally, laryngeal paralysis ensues as the result of pressure on the recurrent laryngeal nerves. Ascites develops. Weakness is a constant symptom.

The physical sign of foremost importance in pericardial effusion is enlargement of the area of cardiac dullness. Some observers[10] believe that it is difficult to recognize fluid unless its amount exceeds 500 cubic centimeters; certainly the fluid must be in excess of 300 cubic centimeters to be detected. In large collections, the increase in percussion dullness to the right and left of the sternum is noticeable. The increased cardiac dullness may be globular when the patient is supine, becoming pyriform (water-bottle shaped) when he is erect.[11] Change in shape of the cardiac outline with change of position may differentiate pericardial effusion from cardiac dilatation. It used to be said that an obtuse cardiohepatic angle (Rotch's sign) was a valuable sign, but it is now considered of only questionable worth. If roentgenologic study, especially fluoroscopy, can be obtained, the early diagnosis of pericardial fluid often is facilitated. Early in the effusion, the lower margins of the cardiac silhouette become filled out and bulged. As the collection of fluid increases, the roentgen ray shadow of the heart becomes globular in shape; the usual landmarks of the heart borders are obliterated and there is generally a striking diminution in pulsation.

Tuberculous and rheumatic pericarditis with effusion are sometimes difficult to differentiate clinically, especially in cases of rheumatic pericarditis without a past clinical history and which presents signs of pericardial fluid only. In such cases, the production of pneumopericardium may give valuable information.[12] Fluid removed from the pericardium is replaced by air so that a roentgenogram will show the heart shadow surrounded by air. Since rheumatic pericarditis is associated commonly with pancarditis, pneumopericardium may show an enlarged heart shadow under the pericardium. On the other hand, in tuberculous pericarditis, myocardial involvement is rare and roentgen ray films will reveal a small heart-silhouette within the air-filled pericardium.

An intensely distended pericardium may exert pressure upon the venae cavae and other vessels to produce peripheral venous stasis. The stasis is apt to be especially severe in the portal system of veins for the peculiarly situated hepatic veins are liable to partial occlusion by the fluid-laden pericardium above. An enlarged tender liver and ascites of varying degree may ensue and edema of the dependent portions and of the face occur.[13]

Treatment of Acute Pericarditis.—Rheumatic pericarditis of the fibrinous type requires no treatment beyond that given for acute rheumatic fever. However, there is evidence that salicylate therapy has a beneficial effect on the course of the pericarditis[14, 15] and it would seem wise to administer salicylates in full dosage during and well after the signs of pericardial irritation have passed, even though the attack seems mild.

No treatment can be offered for the pericarditis of uremia and myocardial infarction aside from the supportive therapy administered for the major condition. Following coronary occlusion, the pericarditis is usually transient.

Uncomplicated effusions call for no specific treatment. However, if the effusion becomes large enough to produce cardiac tamponade or to impinge on the great vessels, paracentesis to relieve pressure may be necessary. When pericardial empyema is suspected, prompt tapping (or surgical exploration) is indicated to establish the diagnosis.[16] Pericardial paracentesis may be accomplished in several ways. Usually the best site for inserting the needle is in the fifth left intercostal space about 2 cm. within the border of cardiac dullness, the needle being directed inward and backward toward the spine. In the nonobese male, the point of the needle may be introduced for a distance of three or four centimeters. If this site is employed, one avoids the danger of scraping the heart in the region of the intraventricular septum thus injuring the anterior coronary vessels.[11] Epigastric puncture may be performed (Marfan technic[17]), but this procedure requires special skill. Occasionally when fluid cannot be obtained by anterior exploration, puncture of the seventh or eighth interspace in the left midscapular line is effective. Pericardial fluid, however, sometimes is encapsulated and exploratory puncture in several places may be required. Puncture in the fourth or fifth interspace in the parasternal line has been recommended as the site of choice in cases of purulent pericarditis.[18] In the presence of empyema, paracentesis should not be attempted in the midscapular line or near

the apex as there is danger of infecting the pleura.[17] It is wise to anesthetize the skin and subcutaneous tissues thoroughly when carrying out the procedure so that the patient is less apt to wince. This precaution will minimize the chance of accidental cardiac puncture. A medium caliber needle (1 mm.) attached to a 50 cc. syringe is usually adequate unless thick, purulent exudate is encountered, in which case a 2 mm. needle may be used.

The treatment of purulent pericarditis requires surgical drainage of the pericardium. The procedure should be carried out as soon as the diagnosis is established for, even with prompt drainage and under ideal conditions, pyopericardium is attended by a 50 per cent mortality.[16, 18, 19, 20] Shipley and Winslow[16] feel that whenever pyopericardium seems present, judged by the presence of bacterial pneumonia or other infection, immediate surgical exploration of the pericardium should be undertaken. They prefer to work under direct visualization of the pericardium rather than to depend on diagnostic puncture with its attendant risks. Aspiration of a pyopericardium should not be utilized as a therapeutic procedure[20] as it is of no benefit and may be dangerous. Purulent pericarditis should, of course, be vigorously treated with the sulfonamide drugs[15, 16] parallel with surgical drainage of the sac.

Chronic Adhesive and Chronic Constrictive Pericarditis.—The origin of chronic pericarditis is often obscure. It generally is supposed that pneumococcal, tuberculous and other bacterial infections usually cause the disease. Difficulty in the early diagnosis of adhesive pericarditis accounts for the many instances in which it goes unnoticed for years.

Chronic adhesive and constrictive pericarditis are apparently the result of the same process but their effects upon the heart, and hence their clinical manifestations, are different. Adhesive pericarditis is characterized by adhesions, large and small, often numerous, binding together the visceral and parietal layers of the pericardium. Other adhesions may extend from the parietal layer to surrounding mediastinal structures. The latter may constrict or tug against the great vessels and hepatic veins. When hepatic venous distortion occurs, enlargement of the liver (with fibrosis) and stasis may result. This syndrome is known as Pick's disease or mediastinopericarditis with pseudocirrhosis of the liver.[22] Constrictive pericarditis results from thickening of the sac as a whole, or in bands, around the heart binding it down and curtailing its diastolic expansion. Calcium deposits in the pericardium are common. In both forms of chronic pericarditis the heart is fettered and handicapped, although often it is remarkably efficient considering its apparent impediments.[21]

Adhesive pericarditis frequently remains unrecognized during life, the condition being discovered at necropsy. However, in a few cases, there develop signs of cardiac insufficiency. Dyspnea occurs and is followed by the usual signs of chronic heart failure. Fixation of the mediastinum has been said to be a helpful indication of adhesive pericarditis but it is often difficult to demonstrate even on roentgenographic examination and is, therefore, of dubious value.

When the heart is compressed by a constricting pericardial lesion, an interesting condition develops. The venous pressure is elevated markedly, producing an enlarged liver, ascites, distended neck veins and dependent edema, often disproportionately small.[21] The arterial pulse-pressure is small. In fact, the signs suggest right ventricular failure. However, the heart is generally of normal size, or only slightly enlarged, and there is no evidence of valvular disease. If the heart is examined fluoroscopically, limited excursion of the cardiac walls is noted. A helpful confirmatory sign—one which has received little emphasis—is failure of satisfactory response to digitalis therapy. The ineffectiveness of the drug is understood readily when one recalls that the diastolic volume remains small and that failure of the heart is not the cause of the syndrome. Accessory signs, such as Broadbent's sign and tugs elsewhere on the chest wall, are helpful when present although not of great value.

Adhesive pericarditis ordinarily calls for no particular treatment. If cardiac decompensation occurs, the usual treatment of heart failure is carried out. The treatment of choice in constrictive pericarditis is cardiolysis (partial pericardial resection) or thoracolysis (fenestration of the thoracic wall in the precordium) with a view to freeing the heart from its bonds and increasing its diastolic volume.[11]

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CASE REPORTS OF THE BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., AND ROBERT A. MOORE, M.D., Editors

CASE 5

PRESENTATION OF CASE

The patient was a 47 year old white man who was admitted to the Barnes Hospital on August 28 and died on August 30, 1942.

Chief Complaints.—His chief complaints were weakness, cough, dyspnea, mental confusion, aching of muscles and skin eruption.

Family History.—Mother, aged 73, has hypertension.

Social History.—The patient was born and lived in Illinois. He was a coal miner for fifteen years before the present illness. He lived on a farm that had few sanitary facilities. Water from a cistern was used in the household and the milk came from a tuberculin-tested cow. The patient owned a tick-infested dog.

Systemic History.—Noncontributory.

Past History.—Essentially negative.

Present Illness.—Toward the end of December 1941, the patient developed a fever with malaise and cough which lasted a few days. The illness was diagnosed "flu." He recovered from this first attack but later suffered some four or five similar episodes. Weakness, anorexia and loss of weight had been progressive since onset and were particularly marked three months before admission when he stopped working. At that time a productive cough became severe and there were a few episodes of nocturnal dyspnea which were diagnosed "asthma." These were characterized by a distinct difficulty in inspiration. Aching and soreness of muscles was then complained of, and about six weeks before admission the patient was bothered by headache. At that time his wife first noted behavior abnormalities which persisted. Two weeks later ova were found in the stools and he was given a vermifuge by his local physician. Four days before admission he became disorientated and a rash was noted on his abdomen. Two days before admission to the hospital he passed grossly bloody urine.

Physical Examination.—Temperature 37 C., pulse 112, respiration 20, blood pressure 138/106. The patient appeared acutely ill and was semi-comatose, poorly orientated and restless. Over the trunk were great numbers of small purpuric spots; also a few were noted on the arms, legs, buccal mucosa and conjunctivae. One large hemorrhagic area surrounded the umbilicus. There were a few rales heard over the left lung posteriorly. Examination of the heart revealed an apical systolic murmur and a questionable diastolic murmur. The liver edge was just palpable on deep inspiration. The spleen was not felt and there was no significant lymphadenopathy. A small hard pea-sized nodule was noted in the skin just below the costal margin.

Laboratory Examinations.—Blood count: red blood cells 4,480,000; Hb. 13.9 gm.; white blood cell count 15,600; differential count: basophils 1 per cent, eosinophils 3 per cent, "stab" forms 7 per cent, segmented neutrophils 55 per cent, lymphocytes 4 per cent. Urinalysis: specific gravity 1.017, albumin 3 plus, sugar 0, microscopic examination showed many red blood cells. Bleeding time was 9 minutes, clotting time, 12 minutes. Prothrombin time—control 20 seconds; patient 25 seconds; platelets 108,000; blood smear for malarial parasites was negative. Blood chemistry: Sugar 97 mg. per cent; nonprotein nitrogen 45 mg. per cent; blood culture, sterile; Kahn reaction, negative. Agglutination reactions for typhoid, tularemia and brucellosis, negative. Lumbar puncture; clear spinal fluid with one cell per high power field. Pandy reaction, negative. Spinal fluid proteins 52 mg. per cent. Gold curve 5555453000. Electrocardiogram showed evidences of "myocardial damage of coronary type."

Roentgen Ray Examination.—This showed patchy consolidation in left lung and questionable consolidation in right lower lung field.

Biopsy of skin nodule; lesion was reported to be a hematoma.

Course in Hospital.—Following admission to the hospital the patient's temperature rose steadily to 39.3 C. He developed Cheyne-Stokes respiration and tubular breath sounds were noted over the left lower lung field. A second differential count revealed 41 per cent eosinophilic leukocytes. The patient never responded from coma and died at the end of the second day in the hospital.

CLINICAL DISCUSSION

Dr. Harry Alexander: The diagnosis in this case may be limited to clinical disorders that give extremely high eosinophilia. What diseases will give this?

Dr. Paul Hageman: A likely diagnosis would be periarteritis nodosa.

Dr. Alexander: What else might we consider?

Dr. Hageman: Parasitic infections.

Dr. Alexander: The man had ova in the stools. Which parasitic infection would you favor?

Dr. Carl G. Harford: One would think first of

trichiniasis since the patient complained of aching of the muscles.

DR. ALEXANDER: Sore muscles and high eosinophilia are in keeping with trichiniasis. Is it not true that one may also have dyspnea associated with this disease?

DR. H. TSUCHIYA: In dealing with infections having a high degree of eosinophilia one always should consider just from where the patient came and what his occupation was. This patient came from Illinois, was a miner and a farmer, and was probably careless about his eating habits. He had a high degree of eosinophilia. In addition he complained of muscular pain. These signs together with fever, dyspnea and leukocytosis are very suggestive of trichiniasis.

DR. ALEXANDER: What about somnolence?

DR. TSUCHIYA: Somnolence is very rare in trichiniasis.

DR. ALEXANDER: He had signs of myocardial involvement.

DR. TSUCHIYA: Occasional cases have been recorded with involvement of the heart but I know of no direct confirmation of the observations.

DR. ALEXANDER: I thought that the worms occasionally invade the heart and cause acute myocarditis.

DR. EDWARD MASSIE: That is correct. In the last year a case was reported and proved at postmortem in which the organism invaded the myocardium, even producing electrocardiographic changes.

DR. TSUCHIYA: That is very rare. A second thought is that living in a mining district the patient possibly might have contracted hoowkorm infection.

DR. ALEXANDER: Do you think this resembles hookworm infection?

DR. TSUCHIYA: No. Did he have any signs of jaundice?

DR. ALEXANDER: There was no jaundice noted. The patient did have some symptoms suggestive of trichiniasis, but his neurologic symptoms, purpura and hematuria would be difficult to explain on that basis. What other suggestions are there? A note in the chart mentioned the possibility of marked eosinophilia with caseous tuberculosis.

DR. ALFRED GOLDMAN: That is very rare.

DR. ALEXANDER: Dr. Wood, you saw the patient and I believe you mentioned Loeffler's syndrome as a possibility to be considered in the differential diagnosis.

DR. WOOD: Two features of the case suggested this possibility. First, the character of the pulmonary shadows in the roentgen ray film and, second, the marked eosinophilia. Loeffler's syndrome, of course, would not explain the many other signs that were present and this diagnosis seemed much less likely than that of periarteritis nodosa.

DR. ALEXANDER: Also, Loeffler's patients did not die and the eosinophilia was not so high as in this case.

DR. GOLDMAN: An eosinophilia of from 35 per cent to 40 per cent has been described but the patients all recovered.

DR. HARFORD: Three other possibilities should be considered. Allergy produces eosinophilia but not of such a high degree. One should consider a possible eosinophilic leukemia, and I think in cases of pulmonary coccidiodomycosis eosinophils are numerous but the evidence of systemic infection is too prominent in this case for coccidiodomycosis.

DR. ALEXANDER: One may rule out extrinsic allergy since the eosinophilia here is far too high for that. Eosinophilic leukemia was thought of, but that diagnosis should be obvious from the blood smear. What about eosinophilic Hodgkin's disease —a definite but rare disorder in which eosinophilia is extremely high in contrast to the usual blood picture of Hodgkin's disease?

DR. CYRIL MACBRYDE: That at least should be mentioned as a possibility.

DR. HAGEMAN: All of the manifestations in this case may be due to disturbances in arterial circulation. These could explain the myocardial changes and the nephritis. The asthma may be based on pulmonary arterial disease. Neurologic symptoms also would fit the picture. The eosinophilia together with these manifestations suggest periarteritis nodosa. Against this diagnosis is the negative skin biopsy.

DR. WOOD: Periarteritis nodosa may account for almost any train of symptoms since the arteries everywhere in the body may be involved. Myocardial damage, nephritis, painful muscles and joints, neurologic manifestations, fever and leukocytosis are common symptoms in periarteritis nodosa. This patient had them all.

DR. MASSIE: In a reported series of periarteritis cases, eosinophilia was not as marked as in this case. In two cases proven at postmortem the counts were only 5 per cent or 6 per cent. Abdominal pain is common in periarteritis nodosa but this man did not have abdominal pain.

DR. WOOD: Dr. Alexander, is it not true that there is a relationship between the asthma of periarteritis nodosa and the eosinophil count?

DR. ALEXANDER: Yes, there is a very definite relationship. There is statistical evidence that from 10 per cent to 15 per cent of cases of periarteritis nodosa are associated with bronchial asthma. Most of these cases of asthma with periarteritis nodosa have extremely marked eosinophilia. Almost without exception every case of asthma with a high degree of eosinophilia has periarteritis nodosa. If this case is an exception to the rule it is the only one I know of. Renal lesions are present in the majority of cases. This man had hematuria, albuminuria and his nonprotein nitrogen was 45 mg. per cent. What about the purpura?

DR. HAROLD ROBERTS: There are many types of skin lesions in periarteritis nodosa. Urticaria and purpura are not uncommon.

DR. OLIVER ABEL: This patient did not have true bronchial asthma when I saw him; he had bronchitis following influenza.

Dr. Alexander: There is a history of attacks of nocturnal dyspnea in which inspiratory difficulty is described. A great deal would depend on whether or not he had bronchial asthma. If he did have it, this case then would follow the rule of close association between asthma and high eosinophilia in periarteritis nodosa.

CLINICAL DIAGNOSIS

Perarteritis nodosa.

DR. ALEXANDER'S DIAGNOSIS

Periarteritis nodosa.

ANATOMIC DIAGNOSIS

Periarteritis nodosa with involvement of the heart, lungs, liver, spleen, pancreas, adrenals, kidneys, bladder, skin, meninges and brain.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: On gross examination there was little to be seen except numerous petechiae and ecchymoses in the viscera. Microscopically there was the classical picture of periarteritis nodosa. There were both recent and healing lesions of the smaller arteries characterized by necrosis of the wall, thrombosis in the lumen and cellular infiltration, predominately of eosinophils. In the heart, kidney and brain there were multiple small infarcts. Careful study of sections of the bronchi failed to reveal the characteristic lesions of asthma-thickening of the basement membrane, hypersecretion of mucus, hypertrophy of the muscle and infiltration of eosinophils. Although these usually are found, their absence should not be taken as negative evidence to outweigh strong clinical support for the diagnosis of asthma.

Dr. Alexander: Could you say something further about the hemorrhagic lesions of the skin.

Dr. Moore: It is difficult to be certain of the cause of the dermal lesions. In the one lesion shown there was an occluded vessel but in others in this case or in other cases there may well be only a change in permeability of the capillaries as in purpura and urticaria.

CASE 6

PRESENTATION OF CASE

The patient was a 40 year old white married woman who was admitted to the Barnes Hospital on September 16, 1942. She died on September 20, 1942.

Family History.—Noncontributory.

Social History.—The patient was born in rural Illinois where she attended school through the eighth grade and married at 18. She had one child. The family moved to St. Louis three years ago and the patient did her housework and also worked in a restaurant where her meal hours were irregular. Her habits were otherwise good.

Systemic History.—The patient had always been subject to head colds. Her teeth had been neglected. She ate more or less continually during the day and had always been obese, weighing from 240 to 250 pounds.

Past History.—Other than malaria at the age of 38, the patient had had no significant illnesses.

Present Illness.—About three and one half months before admission to the hospital, the patient began to feel fatigued. This symptom became progressively worse and two months later she could no longer carry on her work. The only other complaint during this interval was a sense of tightness across the front of her chest. This was constant and was not aggravated by exertion. Five weeks before admission to the hospital, small purple spots began to appear in her skin without evident provocation. These spots gradually increased in numbers. One month later the patient developed a sore throat and fever. Her teeth became painful, the gums bled, became swollen and turned black. The patient's neck, about the angle of the jaws, enlarged at this time and she coughed up or vomited a small amount of blood. All of these symptoms gradually increased. A physician was consulted who diagnosed leukemia and referred her to the Barnes Hospital.

Physical Examination. — Temperature 39.9 C., pulse 112, respiration 24, blood pressure 140/95. The essential findings were as follows: The patient appeared acutely ill; there was marked obesity. The entire skin was covered with a purpuric eruption varying from petechial spots to large purple splotches. There was general enlargement of the lymph nodes and the nodes in the neck, right axilla and right groin were larger than others. They were firm and tender. The patient's gums were swollen, black, tender and spongy, and bled easily. The buccal mucosa was covered with petechiae. The tonsils were enlarged and inflammed and the pharynx was reddened and edematous. The spleen was not palpable but was slightly enlarged to percussion.

Laboratory Findings.—Blood count: red blood cells 2,320,000; Hb. 6.7 gm. (43 per cent); white blood cells 38,000; differential: eosinophils 1 per cent, myelocytes 1 per cent, metamyelocytes 1 per cent, band forms 1 per cent, segmented forms 1 per cent, lymphocytes 5 per cent, monocytes 5 per cent, Y monocytes 76 per cent, blast forms 8 per cent, platelets 23,300, reticulocytes 0.4 per cent. Sternal marrow blood count: myelocytes 1 per cent, metamyelocytes 1 per cent, monocytes 97 per cent, clasmatocytes 0.5 per cent, primitive cells 0.5 per cent, nucleated red blood cells less than 1 per 100 white blood cells. Urinalysis: port wine color, albumin 3 plus, sediment 100 red blood cells per high power field, guaiac test 4 plus. Blood Kahn reaction, negative; nonprotein nitrogen 21 mg. per cent; uric acid 4.9 mg. per cent. Total proteins 8.4 per cent, albumen 3.7 per cent, globulin 4.7 per cent. Roentgen rays of chest were normal. Electrocardiogram showed myocardial damage.

Course in Hospital.—The patient continued to be acutely ill with the temperature swinging between 39 and 41. Swallowing became increasingly diffi-

cult because of a sore throat and severe epistaxis occurred. Two small daily doses (0.061 and 0.8 microcuries) of radioactive phosphorous were given without effect. On September 18, the red blood cells decreased to 2,110,000 and the platelets to 8,400. The following day the patient's temperature rose to 41 and respirations increased in rate and became shallow and noisy. The patient expired suddenly.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: There is very little doubt concerning the clinical diagnosis of acute leukemia in this case. Pain in the chest was an early symptom and raises the question of cardiac involvement. With acute leukemia may we expect to find cardiac lesions or will the heart be normal?

DR. W. BARRY WOOD, JR.: Patients with acute leukemia may have lesions of the heart. There is evidence of hemorrhagic lesions over the rest of the body and I would not be surprised to find some in the myocardium and pericardium.

DR. ALEXANDER: Dr. Massie, would you expect this patient to have coronary occlusion?

DR. EDWARD MASSIE: This patient's type of pain plus the absence of any specific electrocardiographic findings when considered together with her entire clinical picture would certainly not suggest the presence of a coronary occlusion.

DR. ALEXANDER: Do you believe that this patient's anemia contributed to the production of coronary-like pain?

DR. MASSIE: It is true that in patients with latent coronary arterial disease a marked degree of anemia can precipitate definite coronary pain. As a matter of fact, I have seen fairly typical electrocardiographic changes of a posterior coronary occlusion in a patient with severe pernicious anemia and, subsequently, as a result of liver therapy with marked improvement in the red cell count, these changes disappeared.

DR. ALEXANDER: Would hemorrhagic lesions in the heart produce the electrocardiographic changes of myocardial infarction?

DR. MASSIE: That is possible but really quite rare. I have seen patients who at postmortem showed numerous small hemorrhages in the myocardium without specific electrocardiographic changes.

DR. ALEXANDER: Would her great obesity tend to create cardiac embarrassment?

DR. MASSIE: Obesity undoubtedly puts an added significant load on the cardiovascular system. I would not expect the patient to show any significant amount of fat infiltration in the myocardium.

DR. ALEXANDER: Coming to her acute leukemia is there any question of the correctness of this diagnosis?

DR. CARL MOORE: I would subscribe to a diagnosis of acute leukemia. There is more than one kind of acute leukemia. The most common types are myeloid, lymphoid and monocytic.

DR. ALEXANDER: There is a good deal of discussion concerning the types of leukemia. Do hematologists now recognize more than one type?

DR. CARL MOORE: A greater number of hematologists now subscribe to the idea of at least three forms.

DR. ALEXANDER: Although the forms are all distinct there appears to be a similarity of clinical symptoms. Would you be able to distinguish one form from another clinically?

DR. CARL MOORE: I would have a very definite suspicion that this was acute monocytic leukemia. Several members of the house staff called this acute monocytic leukemia before examining the blood. The mucous membrane and skin lesions suggested the diagnosis.

DR. ALEXANDER: Are these distinguishing features qualitative or quantitative?

DR. CARL MOORE: This type of mucous membrane changes of the gums has never been described in anything except monocytic leukemia.

DR. ALEXANDER: The platelets here are remarkably low.

DR. CARL MOORE: They do not need to be. Sometimes one sees acute leukemia with so rapid a course that there is not sufficient time for the platelet count to become low. I remember a robust engineer who developed his first symptoms of leukemia and died within eight days without ever having any marked decrease of the platelet count.

DR. ALEXANDER: Dr. Moore, will you tell us about monocytic leukemia and the natural history of this disease?

DR. CARL MOORE: In 1913 Schilling first described the monocyte as a type specific cell. One year later he found and described the first recognized case of monocytic leukemia. Naegeli, in 1914, studied a patient with monocytic leukemia who he thought showed hematologic characteristics which were different from those in Schilling's case. Naegeli suggested that monocytes may develop either from reticulum cells directly or from myeloblasts. He believed that the leukemic monocytes in Schilling's patient were derived from reticulum, while in the patient he observed they came from myeloblasts. Consequently, according to this idea, the Naegeli type of monocytic leukemia is thought to be a variant myelogenous leukemia, and the Schilling variety is regarded as a leukemic reticuloendotheliosis. Downey and his students have championed this classification in the United States and they have reported that the Naegeli type is the most common form of monocytic leukemia. An opposing view, however, is held by the students and associates of Dr. Sabin and Dr. Doan. They believe that: (1) the monocyte has its own type specific ancestor, the monoblast, and (2) that all cases of monocytic leukemia are essentially the same, the differences seen being only the natural variants which occur in any disease. There is no likelihood that this friendly dispute will be settled until further work clarifies precisely the origin of the monocyte. As you know, I share the belief that there is only one form of monocytic leukemia.

Monocytic leukemia tends to be relatively acute. Only very rarely do patients with the disease live as long as four years. The average duration of life in the twenty-four cases we have studied in our laboratory has been only six months. Six patients lived less than three months and one only eight days. Approximately 16 per cent of all cases of leukemia are monocytic. The disease is primarily one of late middle life but has been observed in young children and in adults past 80 years of age. Only 40 per cent of our patients had a palpable spleen. There was significant lymph node enlargement in 70 per cent and mucosal ulceration occurred in 40 per cent. The most characteristic clinical manifestations are hyperplasia of the gums and skin lesions. The former is occasionally so extensive that the gums cover all but the very tips of the teeth. Skin lesions may be purpuric with a small area of necrosis in the center of the purpuric spots, maculopapular or frankly nodular in type.

Anemia of moderate to severe degree is commonly present and the platelet level is usually low. The leukemic monocytes frequently show a peculiar and quite characteristic folding or grooving of the nucleus. Furthermore, one occasionally can demonstrate cytoplasmic inclusion bodies which stain red with Wright's stain and look very much like tubercle bacilli. These are called "Auer's bodies," and as far as is known, appear only in monocytic and acute myelogenous leukemia.

It is interesting that the patient under discussion had so moderate an anemia when there were practically no nucleated red cells in the marrow. Her clinical course was possibly so rapid that many of her circulating red cells had been formed before the marrow infiltration or proliferation of leukemic cells had become as extensive as it was during the last several weeks of her life.

Dr. Massie: How often do you see obese people with monocytic leukemia?

Dr. Carl Moore: Not infrequently, but the question is interesting because a fair number of patients with monocytic leukemia have a lipemia. You will recall that one can stimulate monocytic responses in experimental animals with phospholipids. It has not, however, been proved that any abnormality of fat metabolism exists in monocytic leukemia.

CLINICAL DIAGNOSIS

Monocytic leukemia.

DR. CARL MOORE'S DIAGNOSIS

Monocytic leukemia.

ANATOMIC DIAGNOSIS

Monocytic leukemia with infiltration of the lymph nodes, bone marrow, spleen, liver, heart and kidneys.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: There is little that I can add to the discussion of Dr. Carl Moore. The pathologic findings were typical of monocytic leukemia. The heart was hypertrophic and dilated. It has been suggested by several investigators that obesity may lead to an increase in the size and weight of the heart.

RADIO BROADCASTS: "DOCTORS AT WAR" TO START ON DECEMBER 26

"American Medical Association dramatized radio broadcasts in cooperation with the National Broadcasting Company will be resumed Saturday, December 26, at 5 p. m. eastern time (4 o'clock central time, 3 o'clock mountain time, 2 o'clock Pacific time)," *The Journal* of the Association announces in its November 21 issue. "The title of the new series will be 'Doctors at War: Book III of Doctors at Work.'

"Doctors at War will be broadcast with the official approval and cooperation of the Medical Department, United States Army, and the Bureau of Medicine and Surgery, United States Navy. Major Gen. James C. Magee, Surgeon General of the United States Army, and Rear Admiral Ross T. McIntire, Surgeon General of the United States Navy, will each appear on the program on selected dates. The broadcasts will be a continuation of the story of Doctors at Work, carrying the fictitious but typical American physicians into the military and naval services of the United States and following the development of the practice of medicine in typical American communities affected by industrial expansion, troop training programs and other wartime influences. As in past years, the program will be dramatized. . . ."

Commenting on the announcement, *The Journal* says that:

"As heretofore, this is a sustaining program; no radio station derives any revenue from broadcasting it. Time on the network and on local stations is given gratis as a part of radio's contribution to public service, and the scientific contribution of the American Medical Association to the program is made in the same spirit. Production costs are shared by the National Broadcasting Company and the American Medical Association. Because this is a sustaining program it may face competition on the schedules of local stations with revenue producing features. . . . Evidence of local interest in the program on the part of medical societies, auxiliaries, health departments, schools and voluntary health and civic agencies if submitted to the radio station well in advance may result in local broadcasting of the program when otherwise this might not occur. . . ."

FIND NEW TREATMENT FOR BURNS—SAVED 30 OUT OF 32 PATIENTS

Treatment employing 2.5 per cent sulfadiazine, a member of the sulfanilamide family of drugs, in 8 per cent triethanolamine, an emulsifying agent and solvent useful for applying certain medicaments to the skin, was found to be valuable in 30 of 32 patients with second and third degree burns, Milton Rothman, M.D.; Joseph Tamerin, M.D., and Jesse G. M. Bullowa, M.D., New York, report in *The Journal of the American Medical Association* for November 14. The area burned varied from 12 to 45 per cent of the body surface. This recovery rate is very high in view of the severity and extensiveness of the burns. The treatment they used is a modification of one reported last year by K. L. Pickrell, M.D., at Johns Hopkins Hospital.

The solution was applied by spraying on the surface of the burn every hour on the first day, every two hours on the second day, every three hours on the third day and every four hours on the fourth day. The wound was dried by fanning or with warm air after each application. A translucent scab formed in twenty-four to thirty-six hours and alleviated pain and the need of frequent dressings. There were no reactions from the sulfadiazine and the solution may be employed without irritation or constriction about the face, mouth, eyes, joints and fingers.

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DECEMBER, 1942

EDITORIALS

MISSOURI PHYSICIANS IN MILITARY SERVICE

A list of members of the Missouri State Medical Association who are in active military service appears on page 382 in this issue of The Journal. The list was compiled by secretaries and presidents of component societies and represents men in service as of November 15. At that time 527 members were in service and approximately 100 additional members were awaiting call. Supplementary lists will be published as additional information is available.

The total number of physicians who had entered service from Missouri prior to September 1 as reported by the Directing Board of Procurement and Assignment was 1,017—888 in the Army and 129 in the Navy.

ANNUAL SESSION IN 1943

The 1943 Annual Session of the Missouri State Medical Association will be held in St. Louis, April 18, 19 and 20, at the Jefferson Hotel, beginning Sunday afternoon and closing Tuesday noon.

At a meeting of the Council on September 20, it was decided to cut the time of the 1943 Session to two days. This was done in view of the great demands on the time of the physician making it difficult for him to leave his practice for long but also taking into account that many physicians now are being called upon to extend their scope of practice. Two days, the Council felt, would allow time for the business of the Association to be transacted and for some practical scientific work to be presented.

The plan of the meeting was formulated by the Committee on Scientific Work and the General Committee on Arrangements in a joint meeting on October 25. Many things were taken into account in arranging the session such as time taken from practice, travel facilities, hotel accommodations, scientific work most valuable at the present time and constitutional provisions.

The House of Delegates will meet at 2:00 p. m. on Sunday afternoon, April 18, with the first Council meeting following in the evening. The first session of the House will be continuous rather than holding the recessed session as is usually done on Monday afternoon of the session. The second meeting of the House of Delegates will convene on Tuesday morning, the third day of the session as provided in the Constitution. The final session of the Annual Meeting will be the Council meeting at noon on Tuesday.

The entire Monday session, from 8:30 a. m. to 5:00 p. m., will be devoted to scientific presentations in round table form. One or more physicians, depending upon the subject, will preside and answer questions presented from the floor and lead the discussion. The subjects of discussion are being selected with the view of giving refresher courses in various fields and this form of program was chosen as the one which would give the most practical and valuable information in a short space of time.

VENEREAL DISEASE CONTROL IN WARTIME

This important topic was the subject of a meeting concluded on October 24, at the Arlington Hotel in Hot Springs National Park, Arkansas. The four hundred and sixty-one venereal disease control officers who attended the meeting came from all parts of the United States, representing the state and Federal governments, and the Army and Navy. Delegations from Mexico and Canada and the personal representative of the Surgeon General of the Norwegian government-in-exile took an active part in the meeting. The outstanding feature of this conference was the unanimity of opinion among all groups and governments that met. The venereal diseases are a staggering drain on the manpower, wealth and strength of a nation in peacetime, and in war the menace is increased vastly by population movements due to industrial expansion, mobilization of men and concentration of troops in training. The recklessness of a young nation at war lends itself to the spread of venereal diseases because of the carelessness of those who are ignorant and the added deliberate exploitation of ignorance and recklessness by the vicious and mercenary antisocial element which flourishes weed-like around war industries and military cantonments.

In all past wars, the records of the Surgeons General of the Army, Navy and Public Health Service have shown a rise in the incidence of venereal diseases in the armed forces and the civilian population. This country is starting this war with the lowest venereal disease rates ever recorded in both groups in the history of the United States. Yet, because the Army and Navy are grow-

ing to an unprecedented size, even if the present low rate prevails, there will be an estimated 380,000 new cases of venereal disease each year, in the armed forces alone. Such a blow from within can enfeeble the nation's war effort more gravely than any shortage of materials and transportation that may yet be experienced.

All cases of syphilis and gonorrhea among the armed forces have been and will be contributed by the civilian population with which soldiers and sailors come in contact. To meet the bold challenge of this internal enemy which is venereal disease and wields a vicious and double-edged sword, every resource remaining in the hands of civilian physicians and the governmental medical services must be exploited to the utmost with ingenuity, perseverance and an increased load of work. The depleted ranks of public health nurses and medical social workers must be filled with intelligent men and women who can be trained quickly to take over contact-tracing and case-holding procedures in the large clinics. Education of the public at large concerning the ever present danger of syphilis and gonorrhea must be expanded in both quantity and quality. The most illiterate and retarded pedestrian, who contributes by far the greatest number of cases of venereal disease in the civilian population, must be reached, told about the venereal diseases and their prevention and cure, and must be directed to sources where good treatment is available. Physicians themselves must become acquainted with the latest and most efficient methods of treating syphilis and gonorrhea and they must enlarge their field of social vision and recognize that each patient seen in their private offices has contracted his infection from another person and possibly passed it on to a third or a fourth. For each patient seen, these other two or three unseen persons must be sought, found and placed under treatment.

To many attending the conference, the highlight of the meeting was given by Dr. Donald Williams, Chief of Venereal Disease Control in British Columbia, who presented a paper on the epidemiology of gonorrhea and the part that the epidemiologic studies of this disease play in unearthing the vast network of the prostitution racket. Dr. Williams contributed a brilliant phrase to the meeting when he urged that talking of "prostitution" be stopped and begin attacking the "community facilitation process" which encourages the activities of the prostitute who, after all, is only the pathetic victim of a chain of antisocial circumstances. The "facilitators" are many and usually their businesses are superficially legitimate, but invariably they profit through the exploitation of normal biologic urges which they overstimulate, or misdirect, or whose restraining bonds they cheerfully and lucratively dissolve in alcohol. This preliminary work is followed by arrangements which provide for meetings, transportation and suitable quarters for the release of the awakened and no longer inhibited instincts. The investors who allow their property to be used in facilitation of prostitution are as much a party to the transmission of venereal diseases as other panderers, the bartender, the taxi driver, the madam and the prostitute who finally infects the potential hero with syphilis for a modest fee. Eight persons have thus made it possible for one soldier to become infected: (1) the tactfully remote owner of the property on which the tavern is situated, (2) the "broadminded" bartender, (3) the procurer, (4) the owner of the cab line who condones the cooperativeness of (5) the cab-driver, (6) the owner of the rooming house who knows perfectly well what is going on, (7) the madam, and (8) the prostitute. The prosecution and punishment of the eight facilitators in the case mentioned is wholly in the hands of the law enforcement officers of the community, and the courageous enforcement of the statutes and ordinances dealing with facilitation in all its shades is the most important contribution to venereal disease control that can be made by any group outside of the medical profession. Without this concerted attack on the tree of prostitution, the medical profession can see itself as a futile and extremely busy little group, frantically trying to kill the rapidly growing tree by picking the fruit off the smallest branches, and only the worm eaten fruit at that.

NEWS NOTES

Dr. H. L. Kerr, Crane, President of the Missouri State Medical Association, addressed the Missouri Press Association in St. Louis on November 13.

Dr. W. Byron Black, Kansas City, was reelected secretary of the American Society of Ophthamology and Otolaryngologic Allergy at a recent meeting of that organization.

Dr. J. L. Myers, Kansas City, was presented a wrist watch at the meeting of the American Academy of Ophthalmology and Oto-Laryngology in appreciation of his sixteen years of service as secretary of the O. R. L. Section of the Academy.

Dr. Evarts A. Graham, St. Louis, was given the St. Louis Award, presented annually to the St. Louisian credited with the most outstanding contribution to the community during the year. The which accompanies a $1,000 award, cited Dr. which accompanies a $1,000 award, cited Dr. Graham for his basic achievements in developing pulmonary and hepatic surgery; his productive leadership as a teacher of students and practitioners and for his influence upon surgical theory and practice and, particularly, for his "comprehensive focusing of present knowledge upon the treatment of war injuries, thereby making this information

easily available to all surgeons for the conservation and rehabilitation of the victim of the carnage of war."

The following physicians were elected to offices of the Missouri Tuberculosis Association at a meeting in St. Louis on October 10: Dr. E. E. Glenn, Springfield, president; Dr. H. L. Mantz, Kansas City, vice president; Dr. Newell R. Ziegler, Columbia, vice president; Drs. Jesse E. Douglass, Webb City; James Stewart, Jefferson City, and J. A. Stocker, Mount Vernon, members of the executive committee.

A combined lecture and demonstration course in Occupational Dermatoses will be conducted in Chicago, beginning January 11, 1943, by Dr. Louis Schwartz, Chief of the Dermatoses Investigations Section of the U. S. Public Health Service of Bethesda, Maryland. The teaching period will cover two weeks, the first of which will be devoted to lectures and demonstrations, and the second to plant visits. Dermatologists, industrial physicians and others interested in the course should communicate with Dr. Edward A. Oliver, 55 East Washington Street, Chicago, Illinois. No limit will be placed upon enrollment for the lectures but the visits to the plants will be limited to twenty-four enrollees. No fees will be charged.

DEATHS

Foster, Forest F., M.D., Kansas City, graduate of the University Medical College of Kansas City, 1913; member of the Jackson County Medical Society; aged 53; died June 8.

St. Avit, John, M.D., Cape Girardeau, graduate of the St. Louis University School of Medicine, 1908; member of the Cape Girardeau County Medical Society; Fellow of the American Medical Association; aged 78; died June 8.

Powell, George McArdle, M.D., Springfield, graduate of the St. Louis University School of Medicine, 1921; member of the Greene County Medical Society; Fellow of the American Medical Association; aged 52; died July 15.

Andersson, Herbert Claude, M.D., Kansas City, graduate of the University Medical College of Kansas City, 1897; honor member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 66; died July 19.

Camp, Francis B., M.D., Springfield, graduate of Emory University School of Medicine, 1922; member of the Greene County Medical Society; Fellow of the American Medical Association; aged 46; died August 11.

McGaughey, Hugh Duncan, M.D., Joplin, graduate of the University of Kansas School of Medicine, 1906; member of the Jasper County Medical Society; Fellow of the American Medical Association; aged 61; died August 13.

Sharpe, Norvelle Wallace, M.D., St. Louis, graduate of the Beaumont Hospital Medical School, 1890; life member of the St. Louis Medical Society; aged 73; died October 24.

Ravold, Amand Nicholas, M.D., St. Louis, graduate of Washington University School of Medicine, 1881; honor member of the St. Louis Medical Society; Affiliate Fellow of the American Medical Association; aged 83; died October 26.

ORGANIZATION ACTIVITIES

THE COMMITTEE FOR THE STUDY OF CARDIAC DISEASE OF THE MISSOURI STATE MEDICAL ASSOCIATION

For several years I have felt that a special committee devoted to the advancement of heart disease in Missouri was much needed.

During the meeting of the American Heart Association in Cleveland two years ago I had the opportunity of talking with other members of the Missouri State Medical Association who were interested in heart work and I found that they too felt the same as I. There was no question regarding the need but no one seemed to want to take the responsibility. Conversation with various groups throughout the state led me to believe that once the movement was started it would find support.

At the Annual Meeting in Kansas City in 1942 Dr. W. A. Bloom, Fayette, Councilor of the Fifth District, brought the matter before the Council with the result that it was referred to the President, Dr. H. L. Kerr, Crane, with the recommendation that he make such disposition of it as he saw fit after investigation.

Dr. Kerr was impressed with the possibilities of such a committee and made his appointments and the committee trusts that he will not be disappointed in his decision.

This is not altogether a new idea, for I learned that our neighbor state, Kansas, has had such an arrangement, now in its fourth year, and it has been very successful. Dr. Phil. Morgan, of Emporia, who has headed the committee since it was founded kindly furnished complete information regarding their plan and gave details regarding their failures as well as their success. This has saved many hours of experiment and I gratefully acknowledge his help. Pennsylvania, Texas and many other states are utilizing this plan so there is ample background for it.

The program is not overly ambitious to start with, and there are some difficulties in carrying out even this program due to the demands of the armed forces on the profession, but the committee still hopes to lay a foundation on which can be erected later the entire structure.

At present we have limited our objectives to the following points:

1. A uniform system of recording cardiac cases both on hospital records and death certificates; the nomenclature to conform to that outlined by the American Heart Association. This will facilitate greatly the compilation of statistical information with regard to heart disease in Missouri which at

the present time is far from uniform and results in great confusion.

2. Working in conjunction with the Postgraduate committee the committee is prepared to furnish to the various county societies programs on cardiac disease with excellent speakers, lantern slides, motion pictures and graphic charts. It is urged that each county arrange to have at least one cardiac program each year. Communication with the chairman will be all that is necessary to secure such a program.

3. At stated intervals the committee will submit a paper or symposium on some timely heart topic with special appeal to the general practitioner devoid of all confusing terminology and written with emphasis on the clinical problems that daily confront the practitioner.

4. The committee will ask the program committee of the State Association to group all papers on cardiovascular subjects in a morning or afternoon session and to arrange to have a dinner for those interested in this branch of medicine.

5. It is hoped to hold refresher courses in various parts of the state at some time other than the time of the state meeting; also, probably a yearly refresher course in the center of the state at which time the committee will have an out of state authority on heart disease.

6. It is planned to organize a section on cardiovascular disease, the dues of which will be very nominal.

7. If sufficient interest is manifested it is hoped to issue each month a leaflet devoted to some timely phase of cardiovascular disease.

It is hoped that all who are interested in this movement will communicate with the chairman of the committee stating their interest and willingness to cooperate for only in this way can success come of the undertaking.

J. De'Voine Guyot, M.D., Chairman
A. Graham Asher, M.D.
Julius Jensen, M.D.

MISCELLANY

PROGRAM ON RHEUMATIC FEVER

An intensive educational program on rheumatic fever and heart disease has been launched by the Metropolitan Life Insurance Company with the cooperation and advice of the American Heart Association, the Academy of Pediatrics and the Crippled Children's Division of the United States Children's Bureau. Beginning this fall, the program will be extended through the first half of 1943.

The purpose of this activity is twofold. Through popular literature, addresses, radio programs, news releases and advertisements an effort will be made to acquaint the general public with the newer knowledge of rheumatic fever and rheumatic heart disease. This phase of the program will stress the importance of early diagnosis, proper care for rheumatic fever victims and the declining mortality rate among children in the younger age groups. The Metropolitan Life Insurance Company is using the services of its field staff in this activity. Through its representatives, who operate in some three thousand communities, the company expects to reach over a million homes with information on rheumatic fever.

An equally important objective of this program will be to distribute to the medical profession up-to-date literature covering various aspects of the rheumatic fever problem. Included among the printed materials for physicians is a clinical booklet which sets forth in concise form the modern concept of the disease, criteria for its early diagnosis and treatment, methods of managing the disease and recognizing its cardiac involvements. This booklet is being developed in collaboration with special committees of the American Heart Association and the Academy of Pediatrics. The membership of these committees include: Drs. T. Duckett Jones, Arthur C. DeGraff, Ann G. Kuttner, Edward F. Bland, Ethel C. Dunham, O. F. Hedley, Hugh McCulloch, Homer Swift, Stanley Gibson and A. T. Martin.

This program marks the first time that a national educational campaign has been undertaken to reach the general public and the medical profession with rheumatic fever literature, especially prepared according to the needs and interests of each group.

SUPPLY OF PHYSICIANS

Critics of the manner in which the supply of physicians for the armed forces and the civilian population is being handled are assailed by *The Journal of the American Medical Association* in an editorial in its November 7 issue. The *Journal* says that the recent statement on the subject by a Senate subcommittee "indicates a lack of information as to what has already been accomplished . . . to meet the needs of the situation" and concludes its editorial with the declaration that "Actually what has been done in relationship to medical services might well serve as a model for the other activities of the War Manpower Commission."

The *Journal* editorial is as follows:

On October 29 Senator Claude Pepper of Florida, chairman of the Subcommittee on Manpower of the Committee on Education and Labor of the United States Senate, made public release of the report of his subcommittee on the supply of physicians for the armed forces and the civilian population. Thus a subject which has been given for some years careful and sustained consideration by some of the best informed and capable minds in the field concerned was thrown into the arena of public discussion. The evidence is lacking that representatives of the personnel divisions of the Army and Navy Medical Departments, the Procurement and Assignment Service for Physicians, Dentists and Veterinarians or the various agencies of the American Medical Association were called by the subcommittee for information before it offered to the people its views on the subject. Indeed the statement issued by Senator Pepper's committee indicates a lack of information as to what has already been accomplished by the agencies concerned in their endeavors to meet the needs of the situation. For instance the report says:

"It is the committee's opinion that an over-all civilian authority should be established at once to supervise and control the drafting and recruiting of doctors. Until this authority is actively functioning, no recruiting of doctors for the armed services should be permitted.

"This authority should immediately conduct a census of all doctors, both those already serving in the armed forces and those still in civilian life. This census should be careful and detailed. It should include a study of the distribution of physicians in civilian communities so that we may know at once what are the minimum needs of each area for medical care and whether these needs are now fully met, oversupplied or undersupplied in both optimum and minimum terms. We should have firmly fixed in mind the irreducible minimum of medical care needed to prevent disease and epidemic in civilian America, including war plant areas."

Had Senator Pepper's committee made inquiry, it would have discovered that the inventories proposed were made by the American Medical Association in 1940 and by the Procurement and Assignment Service in 1941 and that studies are made week by week of the distribution of physicians in civilian communities as the committee proposes. What could the committee have had in mind in proposing that recruiting of physicians for the armed forces be halted regardless of the needs of those forces for medical services? The least that the nation can do for those who offer their lives in combat is to provide them with the utmost that medicine can offer for the alleviation of the wounded and the prevention of unnecessary death.

During the past month articles have appeared on this subject by Dr. Thomas Parran in *This Week* Magazine, by Michael M. Davis in *Harper's* and by an unknown editorial writer in the New York *Times* supporting the proposal that some federal agency be given authority to redistribute the medical profession. Mr. Michael M. Davis expresses the hope that "the Public Health Service will have been given the long delayed authority to act as well as study" by the time his article appears in print. Dr. Parran says in his article:

"As a first step toward making the most of what we shall have left when the armed forces have been supplied with doctors and nurses, it would seem advisable for the War Manpower Commission to ration medical manpower just as the Office of Price Administration rations other essentials of civilian life; so that everybody may have something instead of some people having nothing."

Certainly the medical profession should know now that such forces seem to be urging regimentation of the medical profession by a federal agency. They seem indeed to be demanding authority over the medical profession quite beyond the range of any activities granted by the Congress of the United States to the War Manpower Commission or any other agency over any other profession or trade.

Under the auspices of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians a meeting has been called for this week in Washington to which representatives of all of the agencies intimately concerned with this problem have been invited. From this meeting should come positive action leading toward solution of some of the difficult problems that have been raised. In the meantime there might be a truce on the launching of some of the peculiar proposals that emanate from uninformed sources as a means of solving these problems. The taking of women physicians into the Army, as is proposed in one place, will certainly not make available more physicians for civilian communities. The utilization of interns and residents for the care of the civilian population, as has been proposed elsewhere, would merely deprive the Army of the physicians in the age group most needed. Furthermore, there is no evidence that the doctors who have hesitated to enlist in the Army and Navy Medical Departments would be any happier under the egis and control of the United States Public Health Service. The professional and intellectual attainments of physicians who have offered themselves to the Army and Navy, taken as a whole, are of the finest quality; is there any reason to believe that these physicians would be more attracted to any of the non-military federal services that employ physicians?

The Procurement and Assignment Service was created by the President of the United States and charged with consideration of the task of meeting the needs for physicians of the armed forces, industry and the civilian population. It has approached the problem scientifically, with accurate inventories of physicians available and needed and with due regard for the health of all the people of the United States. At the same time the concept that the winning of the war must be our first objective has not been overlooked. Actually what has been done in relationship to medical services might well serve as a model for the other activities of the War Manpower Commission.

ATTITUDE OF CONGRESSMEN

The following information was released recently by the National Physicians Committee in regard to its activity in contacting congressional candidates.

The Congressional Elections

It is estimated that more than three hundred congressional candidates—elected on Nov. 3, 1942—publicly and unqualifiedly pledged themselves, through "Statements of Opinion," to preserve the independence of the medical profession and our system of distributing medical care.

The Meaning of the Results

The people have spoken. In decisive, unquestionable terms they have given evidence of their deep concern and their rising wrath. They have given a clear-cut, unmistakable mandate, for the duration, to:

Adjourn the jockeying for political place and power; cease the special privileges to pampered groups; abandon the untried, far-reaching schemes for so-called social reforms—to the end that all resources and efforts can be concentrated on the grim and dangerous task of winning a war.

The election of forty-two additional Republican Congressmen and eight additional Republican Senators is of far less importance than the realization that the people have demanded a return to constitutional government. Every member of Congress—Democrat and Republican—has felt the impact of this whip-lash decision.

Meaning in Terms of the Medical Profession

For four long, action-packed years the independence of the medical profession has been dangerously threatened. Our entire system of distributing medical care has been in jeopardy. Now—if medicine is active and on the alert—the plans to foist Federal compulsory, nation-wide health insurance on the American public can be thwarted. A reprieve has been granted. It will make possible the extension and development of plans and of methods that will insure the best of medical care to all the people and continued progress for independent medical practice in the United States.

What Has Been Medicine's Part?

For nearly four years, independent groups of physicians in every state have devoted themselves to the task of clarifying medical and health issues and reducing them to understandable terms. For more than three years, under the auspices of the National Physicians Committee for E.M.S., all available media continuously, methodically have been used to acquaint legislators and the general public with "whys" of American Medicine's excellence and the reasons for its superiority—its world leadership. Many physicians have been unable to understand the importance of these activities. To many, the results, as reported herein, will appear startling—almost incredible.

Basis of Effort

The Court Decisions

On June 16, 1942, the D. C. Court of Appeals handed down a decision—confirming decisions of lower courts—holding that the practice of medicine is "trade and commerce" and that professional controls were "criminal restraints of trade."

Under these conditions it was obvious that if a professional status for physicians was to be preserved and the interests of the public, in matters pertaining to medicine and health, were to be safeguarded, new Federal legislation was essential.

A new Congress—four hundred thirty-five Congressmen and thirty-six Senators—was to be elected on November 3.

The Appeal for Volunteers

In July, the National Physicians Committee asked for volunteers to establish Professional Committees to interview congressional candidates prior to November 3. These committees were to ask for "Statements of Opinion" on professional and medical issues. Five questions were propounded to form the basis of the interviews. They were:

1. Do you favor exempting the professions from the provisions of the anti-trust laws?
2. Do you favor the enactment of legislation which will provide for physicians as a professional group a definite status and the obligation to maintain standards designed to protect the public in matters pertaining to health?
3. Do you favor payroll tax deductions—Federal Compulsory Insurance—to provide for hospital and/or medical care costs in the United States?
4. Do you favor entrusting to the medical profession the responsibility for preserving, extending and further improving our system of medical service in the United States?
5. Do you favor any restrictions or limitations on the choice of physician by any individual seeking the services of a doctor?

The Response

More than two thousand individual physicians and officers of scores of local medical societies volunteered cooperation. These were from 48 States, and 412 Congressional Districts.

The Objectives

In seeking interviews with candidates there were three objectives:

1. To explain the nature and meaning of the Federal Court decisions;
2. To explain medicine's point of view in connection with medical and health issues including Compulsory Health Insurance;
3. To secure from candidates, where possible, "Statements of Opinion" on the issues and assurances of support for essential legislation.

Preliminary Report on Results

On the basis of incomplete returns, it is estimated that, before November 3, individual physicians, committees of physicians, committees of physicians and other professional men, contacted in person or by letter with explanatory literature more than—800 candidates in more than 390 Congressional Districts.

Nature of Reports

Reports vary greatly. In some instances candidates gave verbal assurance of understanding and sympathy to individual physicians or by letter to individual physicians or to physician groups. More than one hundred candidates signed "Statements of Opinion" questionnaires—many signed questionnaires and added supplementary comment.

Of forty Congressmen elected from Districts 1 to 10 in Illinois; Districts 1 to 10 in New Jersey; and Districts 1 to 20 in New York, twenty-two (12 Democrats—10 Republicans) signed "Statements of Opinion" as follows:

	Yes	No
Exemption of Professions from antitrust laws?	22	
Legislation establishing status for professions?	21	1
Federal compulsory health insurance?		20
Physician responsibility for medical care?	22	
Restriction on choice of physician?		21

From this sampling it can be estimated that in the 78th Congress there will be a safe majority favoring what may be termed "the physician point of view."

However, this does not provide an accurate appraisal. On the basis of such information, plus reports of personal interviews, letters from Congressmen to physicians and to physician and professional groups, it can be deduced that, in the 78th Congress, there will be more than three hundred Congressmen out of four hundred and thirty-five who have publicly pledged themselves:

To preserve professional status for physicians;

As unalterably opposed to compulsory health insurance;

To avoid—at any cost—the sacrificing of the sacred doctor-patient relationship.

MEMBERS OF THE MISSOURI STATE MEDICAL ASSOCIATION IN MILITARY SERVICE*

Adler, Morton W., Vandalia
Agress, Harry, St. Louis
Aker, Cecil G., St. Louis
Allee, James W., Eldon
Allee, Wm. S., St. Louis
Allen, Henry C., St. Louis
Allen, Horace E., Columbia
Allen, Joseph E., Columbia
Allen, Wm. Bayne, Kansas City
Altheide, J. Paul, St. Louis
Alvis, Edmund B., St. Louis
Anderson, Richard W., Kansas City
Appleberry, C. H., Flat River
Arbuckle, M. F., St. Louis
Atkins, James A., Lamar
Backlar, Joseph, St. Louis
Baer, Alvin J., Kansas City
Bagby, James W., St. Louis
Bailey, Wm. H., St. Louis
Baker, James M., Columbia
Barger, J. B., St. Louis
Barnes, Asa, Jefferson City
Barnett, Gordon P., Kansas City
Barnhart, Willard T., St. Louis
Barrett, Ralph M. S., St. Louis
Bartlett, Robert W., St. Louis
Bartlett, Willard, Jr., St. Louis
Bassett, Phillip H., St. Louis
Bassett, Robert B., St. Louis
Bassett, S. A., St. Louis
Bassman, Roland S., St. Louis
Beal, Homer A., Kansas City
Beam, Sim F., St. Louis
Bechtold, Frederick F., St. Louis
Becker, George H., St. Louis
Becker, Richard R., Kansas City
Belot, Monti L., Kansas City
Bennett, James D., Cole Camp
Benzing, Wm. Martin, Jr., Kansas City
Berger, Edward J., St. Louis
Berney, Francis J., St. Joseph
Berry, Maxwell G., Kansas City
Bess, George C., St. Louis
Bickel, Vern T., Lamar
Biggs, Fred. J., Poplar Bluff
Bills, Marvin L., Kansas City
Birsner, Louis J., St. Louis
Blades, Brian, St. Louis
Bockelman, Clifford H., St. Louis
Boedeker, Roy V., St. Louis
Boemer, L. C., St. Louis
Bohrer, E. R., West Plains
Bozalis, George S., St. Louis
Brams, Jack B., Kansas City
Brasher, B. H., Lexington
Bredall, J. J., Perryville
Bricker, Eugene M., Columbia

*Reported by all but four counties.

Bromberg, Leon, St. Louis
Brookreson, A. F., Poplar Bluff
Brown, Irwin S., Kansas City
Brown, James B., St. Louis
Brown, James M., St. Louis
Brown, John J., Fulton
Brownton, Sheldon S., St. Louis
Bruner, Claude R., Columbia
Buhler, Victor B., Kansas City
Burford, E. Humber, St. Louis
Burkwall, Herman F., St. Joseph
Byers, Philip L., Kansas City
Cady, Lee D., St. Louis
Carmichael, F. A., Jr., Kansas City
Carney, Joseph E., Jr., St. Louis
Carter, Kenneth L., St. Louis
Casey, Edwin J., St. Louis
Casey, Elmer B. M., St. Louis
Castles, Charles G., Jr., Caruthersville
Cavender, Savino W., St. Louis
Chambers, James Q., Jr., Kansas City
Charles, Benjamin H., St. Louis
Clark, Ray Albert, Kansas City
Clasen, Arthur C., Kansas City
Cleary, Frank, St. Louis
Coburn, Donald F., Kansas City
Cofer, James C., Kennett
Coffelt, Kenneth C., Springfield
Coffey, Ralph R., Kansas City
Cohen, Harry K., Kansas City
Comboy, Lawrence J., Kansas City
Conrad, Adolph H., Jr., St. Louis
Conrad, Joseph A., Kansas City
Cooper, Maurice E., Columbia
Cope, Josef S., Lexington
Cordonnier, Justin, St. Louis
Costrino, Jos. A., Moberly
Cox, Kenneth E., Kansas City
Craig, Irwin T., Joplin
Craig, Owen W. D., St. Joseph
Crouch, F. Richard, Farmington
Crouch, Richard L., Columbia
Cummins, Walter, Jr., Kansas City
Cutler, Harold M., St. Louis
Daley, L. M., Hamilton
Dalton, Arthur R., St. Louis
Daly, John R., St. Louis
Davis, Harry H., Rolla
Davis, Phillips N., St. Louis
Davis, Wilbur L., Charleston
Day, Maxwell, St. Joseph
Delaney, Joseph H., Columbia
Deutch, Max, St. Louis
Devereux, James A., St. Louis
Dietrich, Karl D., Columbia
Diveley, Rex L., Kansas City
Dix, John W., Columbia
Dixon, John Rex, Linneus
Dobbs, Otto R., St. Louis
Dorsey, John Ward, Kansas City
Dowd, James F., St. Louis
Drake, Truman G., St. Louis
Drey, Norman W., St. Louis
Duckett, Thos. G., Sheldon
Duckworth, Wm. H., St. Clair
Duncan, Ralph E., Kansas City
Eberhard, Theo. P., Columbia
Ecker, Decider, Pacific
Eckert, Clarence T., St. Louis
Edwards, Joseph C., St. Louis
Eimer, Charles E., St. Louis
Elkins, Ronald F., Springfield
Elliott, Robert W., St. Louis
Enloe, Cortez F., Jr., Jefferson City
Erni, Harry Edward, Kansas City
Esslinger, G. A., Kansas City
Eubank, Dillard M., Kansas City
Eubank, Wm. Richards, Kansas City
Evans, E. L., Jr., Springfield
Eyerman, Henry W., Warrenton
Ferguson, James T., Jr., Kansas City
Ferrell, T. E., Springfield
Fish, Virgil O., St. Louis
Fitzgerald, Leo B., St. Louis
Flanders, Horace F., Kansas City
Fleishman, Alfred, St. Louis
Fleming, Jacob W., Jr., Moberly
Fletcher, Paul F., St. Louis
Forgrave, John R., St. Joseph
Forman, Geo. Wm., St. Joseph
Foster, Leon, St. Louis
Fowler, Chas. I., N. Kansas City
Frazier, Victor E., Kansas City
Freedman, Harold, St. Louis
Freeman, Joseph H., Kansas City
Frick, John Paul, Kansas City
Furlow, Leonard T., St. Louis
Galeota, Wm. R., Maryville
Garcia, Chas. L., Warrenton
Gard, Raymond F., Kansas City
Gay, George, Ironton
Gay, Lee Pettit, St. Louis
Gerson, Charles E., St. Louis
Gillick, Frederick G., St. Louis
Gillmor, Charles S., Kansas City
Ginsberg, Norman Aaron, Kansas City
Gist, Wm. L., Kansas City
Gist, Wm. W., Kansas City
Gitt, Joseph A., St. Louis
Glaser, Joseph L., St. Louis
Glaser, L. F., Springfield
Glasscock, James R., St. Louis
Goldberg, I. E., Polo
Gorelick, David F., Columbia
Gottlieb, Leo, St. Louis
Graham, John G., Jr., St. Louis
Graham, Wallace H., Kansas City
Grantham, Samuel A., Joplin
Graul, Elmer G., St. Louis
Graves, G. T., Farmington
Gray, Wm. H., St. Louis
Greene, Harry L., Hannibal
Greene, M. L., St. Louis
Greene, Wm. Wallace, Kansas City
Griffith, Edgar M., Harrisonville
Griffith, Harry M., Richmond
Grossman, Marvin, Salem
Growdon, John Arthur, Kansas City
Guccione, Joseph B., St. Louis
Hall, Durwald G., Springfield
Hall, Frank W., Cape Girardeau
Hall, Lee, St. Louis
Halperin, Phillip, Kansas City
Hamilton, Caldwell K., St. Louis
Hamilton, Eugene G., St. Louis
Hampton, O. P., Jr., St. Louis
Hampton, Stanley F., St. Louis
Hannon, R. Emmet, St. Louis
Hanser, S. Albert, St. Louis
Hanss, A. W., Springfield
Harbison, Samuel, St. Louis
Harding, Carl William, Kansas City
Hardy, Guerdan, St. Louis
Hargrove, Fred T., Monett
Harkins, Wm. B., St. Louis
Harkness, Harry, Warrensburg
Harless, Morris S., Kansas City
Harpole, Bernard, St. Louis
Harris, Harold S., Troy
Harris, Maxwell J., Carthage
Harris, Russell D., Carthage
Harrison, Stanley L., Clayton
Hartnett, Leo J., St. Louis
Hartwig, John A., St. Louis
Harwell, J. Lester, Poplar Bluff
Hashinger, E. H., Kansas City

Haw, Marvin T., Jr., Bonne Terre
Hawes, Wm. J., Columbia
Hawker, Wm. D., St. Louis
Helbing, Edward L., Richmond Heights
Heller, Bernard M., Kansas City
Hellweg, Charles E., Mt. Vernon
Helwig, F. C., Kansas City
Herman, A. I., Springfield
Higgins, Clinton K., St. Louis
Hill, Jack Howard, Kansas City
Hoffman, Jacob S., Kansas City
Hogan, Daniel F., Kansas City
Hogg, Garrett S., Jr., Cabool
Hogue, Frank S., Kansas City
Hollo, Vencel W., St. Louis
Hook, Waller G., Kansas City
Hoover, H. Lee, Springfield
Hopson, George, St. Joseph
Horton, James D., Springfield
Horwitz, Irwin B., St. Louis
Howe, Louis F., Union
Hoxie, D. A., Poplar Bluff
Hughes, J. M., St. Joseph
Hughes, Shelby B., Clinton
Hungate, Carroll P., Kansas City
Hunter, M. P., Moberly
Hurst, Martin Joseph, Kansas City
Hurst, W. W., Joplin
Isbell, Charles H., Carthage
Jacob, Rudolph D., St. Louis
Jarvis, James A., Kansas City
Jenkins, Paul A., Lebanon
Jesgar, William, St. Louis
Jessell, C. Todd, Higginsville
Johnson, Delbert P., St. Joseph
Johnson, Paul Abel G., Kansas City
Johnston, A. D., Corder
Johnstone, Paul N., Kansas City
Jolly, Benj. N., St. Charles
Jones, James B., Rolla
Jones, Paul L., Rivermines
Jostes, Frederick A., St. Louis
Juden, Alexander J., Cape Girardeau
Kaplan, Albert, St. Louis
Karpass, Victor H., Cape Girardeau
Kasha, Robert L., St. Louis
Kaufman, Julius R., St. Louis
Kavanagh, A. L., Nevada
Keffler, Karl L., St. Louis
Keim, John H., Richland
Keller, Louis, St. Louis
Kelley, Gilbert B., Savannah
Kelley, Robert W., St. Louis
Kelling, Jordan, Waverly
Kelly, R. Emmet, St. Louis
Kelly, Thomas J., Jefferson City
Kenamore, Bruce, St. Louis
Kerr, Russell W., Kansas City
Kimes, Ira, Cameron
Kirstein, Melvin B., St. Louis
Kirtz, Louis P., St. Louis
Kitchen, Wm. M., Moberly
Klein, Bert H., St. Louis
Klein, Edward H., Kansas City
Klingner, G. M., Springfield
Knepper, P. A., St. Joseph
Knese, Luke A., St. Louis
Knight, Wm. A., Jr., St. Louis
Koon, B. T., Perryville
Kranson, Seymour J., Kansas City
Kuhn, Wm. F., II, Kansas City
Kulowski, Jacob, St. Joseph
Kyger, Edgar Ross, Jr., Kansas City
Lacy, Nicholas E., Kansas City
Landau, Daniel B., Hannibal
Langhus, Melvin O., N. Kansas City
Larsen, Kenneth V., St. Louis
Lattuada, Henry P., St. Louis
Laudicina, August P., St. Louis
Lederman, Joseph, St. Louis
Leech, Charles A., Columbia
Levey, Harry B., Kansas City
Lieberman, B. Albert, Jr., Kansas City
Littmann, Lewis E., St. Louis
Londe, Sol, St. Louis
Long, Forrest C., Savannah
Lowry, Charles F., Kansas City
Lucido, Joseph L., St. Louis
Luedde, Fullerton W., St. Louis
Luedde, Philip S., St. Louis
Lyman, Edward H., St. Louis
McAdam, C. Rush, St. Louis
McAlester, A. W., III, Kansas City
McDonald, George J., St. Louis
McDonald, Wilbur P., Affton
McGuire, Wm. A., St. Louis
McIntire, Landon R., St. Charles
McMahon, Alphonse, St. Louis
McNew, Wm. T., Carthage
McPheeters, James W., Poplar Bluff
Macauley, Bernard J., Gerald
Macnish, James M., St. Louis
Maddox, John D., Joplin
Magness, Guy N., University City
Marks, Mark M., Kansas City
Marmor, Wm. A., St. Louis
Martin, A. D., Sikeston
Martin, Bruce C., St. Louis
Martin, Charles E., St. Louis
Mattis, Robert D., St. Louis
Max, Paul F., St. Louis
Meador, J. R., Clayton
Meinershagen, C. W., Webb City
Mellies, Chester J., Mt. Vernon
Menefee, Buell, Montgomery City
Merenda, Sam J., St. Louis
Merz, Jean J., St. Louis
Meyer, Curtis A., St. Louis
Meyer, T. R., Clayton
Middleman, I. C., St. Louis
Miller, D. Herbert, Chariton County
Mooney, Marcel L., Kansas City
Moore, Ernest M., Jr., Higginsville
Morest, F. Stanley, Kansas City
Morgan, David Basil, Kansas City
Moss, Paul, Kansas City
Motley, Hurley L., Columbia
Mountjoy, Philip S., St. Louis
Mowrey, Wm. O., St. Louis
Mueller, Morris A., St. Louis
Mulkey, James E., Farmington
Mulligan, Leo V., St. Louis
Mullinax, Orr, St. Joseph
Mulliniks, E. C., Springfield
Murphy, James P., St. Louis
Murphy, Jos. G., St. Louis
Myers, D. W., St. Louis
Myers, Ralph R., Kansas City
Napper, Marvin L., Springfield
Nelson, Charles S., Kansas City
Nelson, James M., Kansas City
Nester, Charles A., St. Louis
Newman, Ross M., Kansas City
O'Brien, Edward C., St. Louis
O'Brien, James A., Joplin
O'Donoghue, James, St. Joseph
Owens, Guy E., Kansas City
Panettiere, Andrew H., St. Joseph
Pareira, Morton D., St. Louis
Parker, Hubert M., Kansas City
Passanante, B. M., Clayton
Patton, John F., St. Louis
Pearse, Roy W., Jr., Nevada
Pernoud, F. G., Jr., St. Louis
Peterson, F. J., St. Louis
Pipkin, Francis G., Kansas City

Platt, Paul C., Kansas City
Platz, John H., Carrollton
Poe, John S., St. Louis
Polsky, Morris, Kansas City
Post, Cyril A., St. Louis
Post, Winfred L., Joplin
Potter, Reese H., Nevada
Powers, Pierce W., St. Louis
Preston, Albert, Jr., Kansas City
Printz, Joseph H., Kansas City
Pruett, Burchard S., St. Louis
Pudleiner, H. G., Canton
Raines, Oney C., Jr., St. Louis
Rainwater, E. H., Springfield
Randall, Leslie, Licking
Redmond, Wm., St. Joseph
Reh, Edward P., St. Louis
Reynolds, Garland A., Cape Girardeau
Rice, Grover C., Kansas City
Richardson, Lyman K., Kansas City
Richman, Elmer, St. Louis
Rigney, L. M., Springfield
Robinson, Ernest Kip, Kansas City
Robinson, George G., Humansville
Robinson, G. Wilse, Jr., Kansas City
Roche, Maurice B., St. Louis
Roper, Stanley D., Ozark
Rosenbaum, Harry D., St. Louis
Rosenfeld, Henry, St. Louis
Rosenthal, Irwin I., St. Joseph
Rosenthal, Leonard G., St. Louis
Rost, Wm. B., St. Joseph
Rowlette, Avery P., Cape Girardeau
Roy, Gustave A., Kansas City
Samuelson, Edward A., Kansas City
Satterfield, Val B., St. Louis
Saunders, Everett L., Kansas City
Schaerrer, Hans, Kansas City
Schaerrer, Wm. G., Kansas City
Scharles, Frederick H., Kansas City
Schilling, R. D., Clayton
Schluer, Elmer P., St. Louis
Schneider, Louis, St. Louis
Schopp, Alvin C., Columbia
Schuck, Carl A., St. Louis
Schuhmacher, N., Liberty
Schutz, Richard B., Kansas City
Schwartz, Eugene J., Springfield
Schwartz, Henry G., St. Louis
Schwartzman, Bernard, St. Louis
Scott, Wendell G., St. Louis
Seabaugh, Rusby, Jackson
Seibel, Marshall G., St. Louis
Senne, Herbert C., St. Joseph
Senturia, Ben D., St. Louis
Senturia, Hyman R., St. Louis
Settle, Emmett B., Rockport
Shaw, Wm. J., Fayette
Sheldon, John, Kansas City
Shelton, Edward O., Eldon
Shelton, Wm. Prior, Kansas City
Siceluff, Jos. G., Springfield
Silsby, D. Harry, Springfield
Silsby, Don James, Mt. Vernon
Simmons, Leroy, Sarcoxie
Simon, Jerome I., St. Louis
Simpson, Robt. H., Columbia
Smith, Arthur Bremmer, Kansas City
Smith, Hugh R., St. Louis
Smith, James O., Clinton
Smith, Rollin H., Rich Hill
Snyderman, Henry, Kansas City
Soderberg, N. B., Kansas City
Spelman, A. E., Smithville
Squibb, J. W., Springfield
Stacy, Winton T., St. Joseph
Stanbro, William, St. Louis
Stapp, Roth Van Allen, Kansas City
Stauffacher, C. Gordon, Sedalia
Stephens, LeRoy J., St. Louis
Stevens, Lawrence H., St. Louis
Stewart, Wm. J., Columbia
Stockwell, Arthur L., Kansas City
Stofer, Dar Delos, Kansas City
Stone, Wm. E., Boonville
Stricker, Emil A., St. James
Strub, Giles J., St. Louis
Stuart, D. D., Brunswick
Stuebner, Roland, St. Louis
Sullivan, Clement J., St. Louis
Sullivan, Wm. J., Waynesville
Summers, Jacob H., Lebanon
Susanka, Wm. D., St. Louis
Sutter, Richard A., St. Louis
Sutton, Chas. E., Washington
Swisher, Robt. C., Kansas City
Talty, Matthew H., St. Joseph
Tarver, Quinton, Kennett
Taussig, Joseph, St. Louis
Taylor, Leon A., Jefferson City
Taylor, Wm. E., Springfield
Tenaglia, E. D., St. Louis
Thibault, F. G., Neosho
Thompson, F. G., Jr., St. Joseph
Throgmorton, H. B., Sikeston
Tracy, Herbert A., Perryville
Treharne, Frank E., Kansas City
Tripodi, Anthony M., St. Louis
Trowbridge, E. H., Jr., Kansas City
Underwood, Johnson, Jr., Kansas City
Unger, Harold, Kansas City
Vandiver, Virgil D., Chillicothe
Vandover, John T., St. Louis
Van Ravenswaay, A. C. H., Boonville
Vaughan, J. Russell, St. Louis
Vincent, Cranston G., Kansas City
Virant, John A., St. Louis
Wade, Frederick E., Kansas City
Waihoja, Wm. J., Lebanon
Wakefield, Franklin H., Kansas City
Wakeman, J. M., Springfield
Walker, Paul Wm., Joplin
Wallace, Edwin S., Lexington
Wallace, Hilen K., St. Joseph
Walton, Franklin E., St. Louis
Warson, Samuel R., St. Louis
Wasserman, Helman C., St. Louis
Weber, Wm. K., St. Louis
Weiner, David O., St. Louis
Weir, Don C., St. Louis
Weisman, Sol, St. Louis
Wepprich, M. S., Union
Welch, Eldred E., Kansas City
Wensley, John E., Kansas City
White, Charles H., Kansas City
White, R. Ned, Springfield
White, Stoughton F., Kansas City
Whitten, Marion F., Carthage
Willhelmy, E. W., Kansas City
Williams, Bill H., Joplin
Williams, J. W., Springfield
Williamson, Walter E., St. Louis
Wilson, F. I., Kansas City
Wilucki, Melvin R., St. Louis
Wimp, J. J., Kirksville
Wolf, Jack Walter, Kansas City
Wood, Bennett R., St. Louis
Wood, Lawrence E., Kansas City
Woodfin, Lyle L., Kansas City
Wooldridge, A. G., Butler
Wright, Richard P., Kansas City
Wulff, George J. L., Jr., St. Louis
Yancey, D. L., Springfield
Zellermayer, Jacob, Kansas City
Ziegler, Allen M., Kansas City
Ziegler, N. R., Columbia

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

COUNTY SOCIETY HONOR ROLL
1942

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

HONOR ROLL

Perry County Medical Society, November 28, 1941.
Camden County Medical Society, December 10, 1941.
Benton County Medical Society, December 12, 1941.
Ste. Genevieve County Medical Society, December 19, 1941.
Pulaski County Medical Society, December 22, 1941.
Moniteau County Medical Society, December 23, 1941.
Miller County Medical Society, December 26, 1941.
Chariton County Medical Society, December 29, 1941.
Montgomery County Medical Society, January 20, 1942.
Holt County Medical Society, January 26, 1942.
Dallas-Hickory-Polk County Medical Society, January 28, 1942.
Butler County Medical Society, February 21, 1942.
Scott County Medical Society, February 21, 1942.
Cass County Medical Society, March 5, 1942.
Lincoln County Medical Society, March 5, 1942.
Johnson County Medical Society, March 13, 1942.
Macon County Medical Society, March 24, 1942.
Webster County Medical Society, March 28, 1942.
Morgan County Medical Society, April 1, 1942.
Franklin County Medical Society, April 13, 1942.
Barry County Medical Society, April 18, 1942.
DeKalb County Medical Society, May 1, 1942.
Christian County Medical Society, June 4, 1942.
Dent County Medical Society, July 14, 1942.
Mercer County Medical Society, October 6, 1942.

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

The Eighth Councilor District held a clinic session in cooperation with the Postgraduate Committee of the State Association at the Colonial Hotel, Springfield, on October 23. Approximately 125 physicians attended the session.

The scientific program, beginning at 3:30 p. m., was composed of a presentation on "The Uses and Abuses of the Sulfa Drugs" by Dr. Raymond O. Muether, St. Louis; and one on "The Toxemia of Pregnancy" by Dr. Joseph Hardy, St. Louis.

A social hour preceded a dinner at 6:00 p. m.

At the dinner meeting Dr. Paul F. Cole, Springfield, president of the Greene County Medical Society, spoke briefly. He stated that the Greene County Medical Society had one hundred members and that twenty-two of those members were now in military service. Dr. Cole said that thirty-four physicians from Greene County served in the last war.

Dr. Wallis Smith, Springfield, Councilor of the Eighth District, introduced Dr. Joseph C. Peden, St. Louis; Dr. E. C. Bohrer, West Plains, Councilor of the Ninth District, and Dr. Curtis H. Lohr, St. Louis, Councilor of the Third District. Dr. Lohr introduced Army Medical Officers from O'Reilly Hospital who were guests at the meeting.

Following these introductions Dr. H. L. Kerr, Crane, President, spoke briefly.

Mr. Raymond McIntyre, St. Louis, Acting Executive Secretary, spoke briefly on the work of the Association.

Dr. Robert Mueller, St. Louis, Missouri State Chairman, Procurement and Assignment Service, gave a short talk and answered questions.

The meeting closed with a scientific presentation on "Industrial Health and Surgery as Related to the War," by Dr. C. E. Funsch, St. Louis.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Scott County Medical Society

The Scott County Medical Society met in the Public Library, Sikeston, November 3.

Visitors present were Dr. R. Ferguson, United States Public Health Service; Mr. Thatcher Scism, District Manager of the F. S. A. Medical Care Plan, and Mr. Raymond McIntire, St. Louis, Acting Executive Secretary of the Missouri State Medical Association.

Dr. H. S. Miller, Sikeston, announced that the new State Board of Health Laboratory was at the service of the physicians in the district.

Dr. A. D. Martin, Sikeston, and Dr. H. B. Throgmorton, Sikeston, were reported to be in military service.

The following resolution was adopted unanimously by the Society regarding the practice of members absent in military duty:

Whereas, The Scott County Medical Society recognizes the patriotism, loyalty and personal sacrifice of its members who have joined the military service, and

Whereas, The Society desires to protect the physicians in their absence with the Armed Forces, therefore

The following rules are adopted:

1. At the conclusion of the war the patients of the absent doctors will be returned to them and members of the Society shall seek the cooperation of the patients in this effort.
2. The members of the Society will seek to protect and retain the practices and locations of the absent members and return them as far as possible when they are released from military duty.

3. It shall be the duty of the Society members to discourage and seek to prevent the location of new physicians in the communities where the physicians are temporarily absent on military duty.

The annual audit of the F. S. A. Medical Care Plan was presented by Mr. Scism and approved. The Society voted to participate in the new plan for 1943.

Mr. Raymond McIntyre, St. Louis, spoke on important practical points of work in the State Secretary's office.

Dr. H. M. Kendig, Sikeston, introduced a resolution, seconded by Dr. E. J. Nienstedt, Sikeston, giving the Society's endorsement to the Community Health League of Missouri and promising financial and moral support. The secretary was instructed to write each member on the subject.

The next meeting will be held in Sikeston, December 2.

W. O. FINNEY, M.D., Secretary.

BOOK REVIEWS

WOMAN'S PERSONAL HYGIENE, MODERN METHODS AND APPLIANCES. By Leona W. Chalmers. Foreword by Winfield Scott Pugh, B.S., M.D., New York City. Drawings by Alfred Feinberg, Medical Artist, New York City. X-Rays by Winfield Scott Pugh, M.D. Photographs by Tom Rodd, New York City. 1790 Broadway, New York: Pioneer Publications, Inc. 1941. Price $2.00.

When a lay person attempts to write on a medical subject the result often resembles the effusions of a Mrs. Malaprop. Thus in this book one learns that "pitocin" stimulates uterine muscle, that women with injuries from childbirth have "peritoneal relaxation," that gonorrheal vaginitis is the cause of infantile uterus, that Crede's method consists in dropping argyrol in the baby's eyes and that the mother feels her infant's heartbeat at exactly four months and sixteen days after conception.

Three of the fifteen chapters of this book are devoted to the subject of douching. The virtues of the "vaginal cocktail" are extolled in glowing terms. So free is the author in her recommendation of various forms of equipment for this purpose and for internal menstrual protection that this portion of the book reads like a paid advertisement.

A subsequent chapter deals with the work of a plastic surgeon who operated in public before the International Beauty Convention.

In short, whatever good might be derived from a book of this character is obscured in this instance in a mass of questionable advice and misinformation. R. G. H.

THE NATIONAL FORMULARY. Seventh Edition. National Formulary VII. Prepared by the Committee on National Formulary by Authority of the American Pharmaceutical Association. Official from November 1, 1942. Washington, D. C.: American Pharmaceutical Association. 1942.

The National Formulary, Seventh Edition (N.F. VII), that important and much used product of the American Pharmaceutical Association, is now off the press, ready for circulation and becomes official November 1, 1942.

In presenting the new formulary at this date the Committee of Revision of National Formulary of the American Pharmaceutical Association launches upon a new ideal, that of attempting to revise this important work every five years instead of every ten years. The first National Formulary was issued in 1888 and since then there have been five revisions appearing approximately every ten years. The National Formulary VI was issued in 1935 and now within seven years there is another revision. This is a praiseworthy program for, although it calls upon the Revision Committee to triple their work and their responsibilities, it nevertheless supplies the pharmacy and medical professions with more up-to-date data.

The new Formulary has a new chapter admitted to it. It is a survey "Preparation for Use in the Clinical Laboratory." This has been accomplished through the cooperation of the Committee on the National Formulary and the Committee on Ingredients of Bacteriological Media. This represents a massive amount of information on characteristics and descriptions of ingredients and media.

The physcian will find data of great importance in the New National Formulary VII. There is a completely revised and greatly enlarged chapter on materials and preparations for diagnostic use and this section now is entitled "Reagents and Preparations for Use in the Clinical Laboratory." This chapter has the reagents listed in alphabetical order and gives details for the preparation of reagents and for the technic of many laboratory procedures.

Finally the Committee has displayed its usual painstaking characteristics in the revision of the monographs on chemicals and has changed somewhat the editorial style of this chapter.

It now takes its place deservedly as a reference book of high quality and exhaustive completeness. C. W. D.

A MANUAL OF PHARMACOLOGY and Its Applications to Therapeutics and Toxicology. By Torold Sollmann, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. Sixth Edition, Entirely Reset. Philadelphia and London: W. B. Saunders Company. 1942. Price $8.75.

This "Manual of Pharmacology" by Torold Sollmann, of Western Reserve University, Cleveland, is now in its sixth edition. It has long been one of the foremost of the many books on this subject and the present edition has been entirely rewritten and brought up-to-date. The many new drugs now in daily use are described and their indication, uses and limitation evaluated. English titles are given preference as the use of Latin in prescribing seems to be becoming obsolete. The general arrangement of the text is the same as in the previous editions but the policy of listing and describing all the preparations of the United States and British Pharmacopeia has been abandoned and only the more important ones described regardless of their official status.

The bibliography is restricted to the articles which appeared subsequent to 1920 as the literature in an active field like pharmacology is so voluminous that some restriction of the references would appear necessary. Earlier references can be located through the earlier editions of the manual or through the "Index of the Surgeon General's Library."

The present edition of this book is probably the best and most recent work on this subject in the English language. It can be recommended as a reference volume for the practitioner and as a textbook for the student of medicine. L. H. H.

THE PRINCIPLES OF NEUROLOGICAL SURGERY. By Loyal Davis, M.S., M.D., Ph.D., D.Sc., (Hon.), Professor of Surgery and Chairman of the Division of Surgery, Northwestern University Medical School, Chicago, Illinois. Second Edition, thoroughly Revised. With 154 Engravings, containing 298 Illustrations and five colored plates. Philadelphia: Lea & Febiger. 1942. Price $7.00.

The general practitioner has long needed a single composite treatise on neurologic surgery to guide him in the management of the patient with neurologic problems. The book is the first systematic comprehensive review

of neurosurgery in the English language intended primarily for the student and general practitioner. To them this text is invaluable. H. U.

Clinics. Vol. 1, No. 1, June 1942. Edited by George Morris Piersol, M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. Philadelphia: J. B. Lippincott Company, Publishers.

Introduced to provide a more flexible medium of reporting current opinion and progress, this new, bimonthly publication supplants the "New International Clinics." It is proposed that in each issue its subject matter shall be grouped into four major divisions: a symposium on some timely topic such as hemorrhage, transfusion or industrial surgery; a section on original contributions which will probably include discussions of various phases of military medicine; a section on clinics with brief discussions of interesting or unusual cases and, when the importance of the subject seems to warrant it, a review of recent progress in some field of medical research. It is further proposed by the selection of editors and contributors from widely scattered centers to avoid sectionalism and partisanship. Including among the editorial collaborators men from Yale, Cornell, Rush, Johns Hopkins, McGill, Tulane, Washington, Harvard, and the Universities of Pennsylvania, California, Louisville, New York, and the University College Hospital, London, seems to assure this latter objective from the outset.

In the first issue of "Clinics," the symposium is given over to a consideration of burns and shock. It is emphasized that not all burns are amenable to the same routine of treatment and prominence is given to the "principle of regional variation." It is pointed out that while some method of tanning may give most satisfactory results on the broad skin areas of the trunk or extremities, a tan on the face or hands actually may increase local tissue injury through compression of circulation and the production of additional necrosis. There is a consensus of opinion that blood plasma in generous amounts, rather than blood, is the ideal antidote for the shock produced by burns. The other type of shock characterized by hemoconcentration, that produced by dehydration and loss of electrolytes, is well treated by equal parts of plasma and physiologic saline. Ordinary surgical, traumatic and hemorrhagic shock, on the other hand, are characterized by hemodilution and while emergency treatment with blood substitutes is imperative, blood itself should be administered as soon as possible.

The section on Original Contributions includes such diverse topics as epidemic influenza, headache of otorhinologic origin and the evaluation of cardiac efficiency. Smith and Menefee report that 116 male students with clinically typical influenza were treated conservatively with aspirin, codeine, ephedrine nose drops and saline gargles. The average duraton of fever was about three days. One hundred and five similar students were treated with sulfathiazole, 2 gm., initially, and 1 gm. every four hours until the temperature had been normal for twelve hours. The average duration of fever was one and six tenths days. Although the initial leukocyte counts were between 4,000 and 9,000, the majority being nearer the lower level, "none of the treated students (i.e. with sulfathiazole) developed leukopenia, hemolytic anemia, skin rash, drug fever or arythema nodosum." One wonders whether these results are due to an effect of the sulfathiazole on the virus or on the principal secondary invader, the hemolytic staphylococcus aureus. Persky's discussion of otorhinologic headache will be of interest to all those confronted with headaches as a presenting complaint. Gilmore, although favoring exercise tolerance tests of cardiac efficiency, admits that the ideal technic lies in the future and emphasizes the importance of a careful history.

The section on clinics is presented by members of the faculty of the School of Medicine of Tulane University and embraces a wide variety of topics, ranging from rupture of the uterus to tuberculous pericarditis. The discussions in connection with these cases should be particularly valuable, reviewing as they do the principles of differential diagnosis, alike to students and to practitioners of unrelated specialties.

Reviewing recent progress in the study of the responses of peripheral blood vessels in man to various drugs, Abramson presents an extensive study of the literature and an extensive bibliography.

Physically the magazine is pleasing being of a convenient size and well printed with generous margins on good quality paper. The inclusion of a cross index is an advantage but the omission of titles from bibliographic references definitely reduces their value to one seeking related materials. It would be a great improvement to give references uniformly in the style of the "Quarterly Cumulative Index." W. H. G.

Emergency Care. By Marie A. Wooders, B.S., R.N., Principal, School of Nursing, Hackensack Hospital, Hackensack, New Jersey, and Donald A. Curtis, M.D., Lieutenant-Colonel, Medical Reserve, Commanding 342nd Medical Regiment, United States Army; Instructor in Military Nursing, Hackensack Hospital, Hackensack, New Jersey. 201 Illustrations. Philadelphia: F. A. Davis Company, Publishers. 1942.

This is a text for those who are preparing to serve or are already serving the nation in this emergency by caring for the sick and injured. It is prepared so that it meets the needs of the emergency worker in the hospital, the home, the camp, in industry and on the battlefield.

Unit I coincides with the technics of first aid as presented by the American Red Cross. The next four units are devoted to other types of emergencies of a more specific nature. For instance, the unit on hospital accidents includes a short discussion on mental emergencies. The purpose of this discussion apparently is to aid in the preservation of national morale and to prevent fear which may pave the way for panic and similar disastrous mental emergencies.

Unit VI on national and civil emergencies explains the organization of the Army and Navy, discusses chemical warfare, evacuation and many other topics related to emergency work with the Armed Forces.

The book is readable, abundantly illustrated and attractively bound. M. A. P.

Treatment in General Practice. By Harry Beckman, M.D., Professor of Pharmacology, Marquette University School of Medicine, Milwaukee, Wisconsin. Fourth Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company. 1942. Price $10.00.

A new and complete text revised by Dr. Beckman is now presented to the medical profession. The style and presentation in this fourth edition is similar in those previously published and is written in a clear concise manner. One can note the emphasis upon therapeutics in more recent years as this book is much more voluminous than the preceding issues. The author presents a number of entities for the first time. In a like manner, he has omitted some disease entities which are rarely seen, particularly in this country.

Although this fourth edition is considerably increased in size one does not tire of reading it and various diseases and their treatment are readily found. The literature has been carefully perused and one is exposed to the summaries of the author on various diseases.

At the end of the book there is an adequate bibliography for one who wishes to inquire further into the therapeutic field. This is an excellent book and every practitioner should own a copy. A. E. U.

